

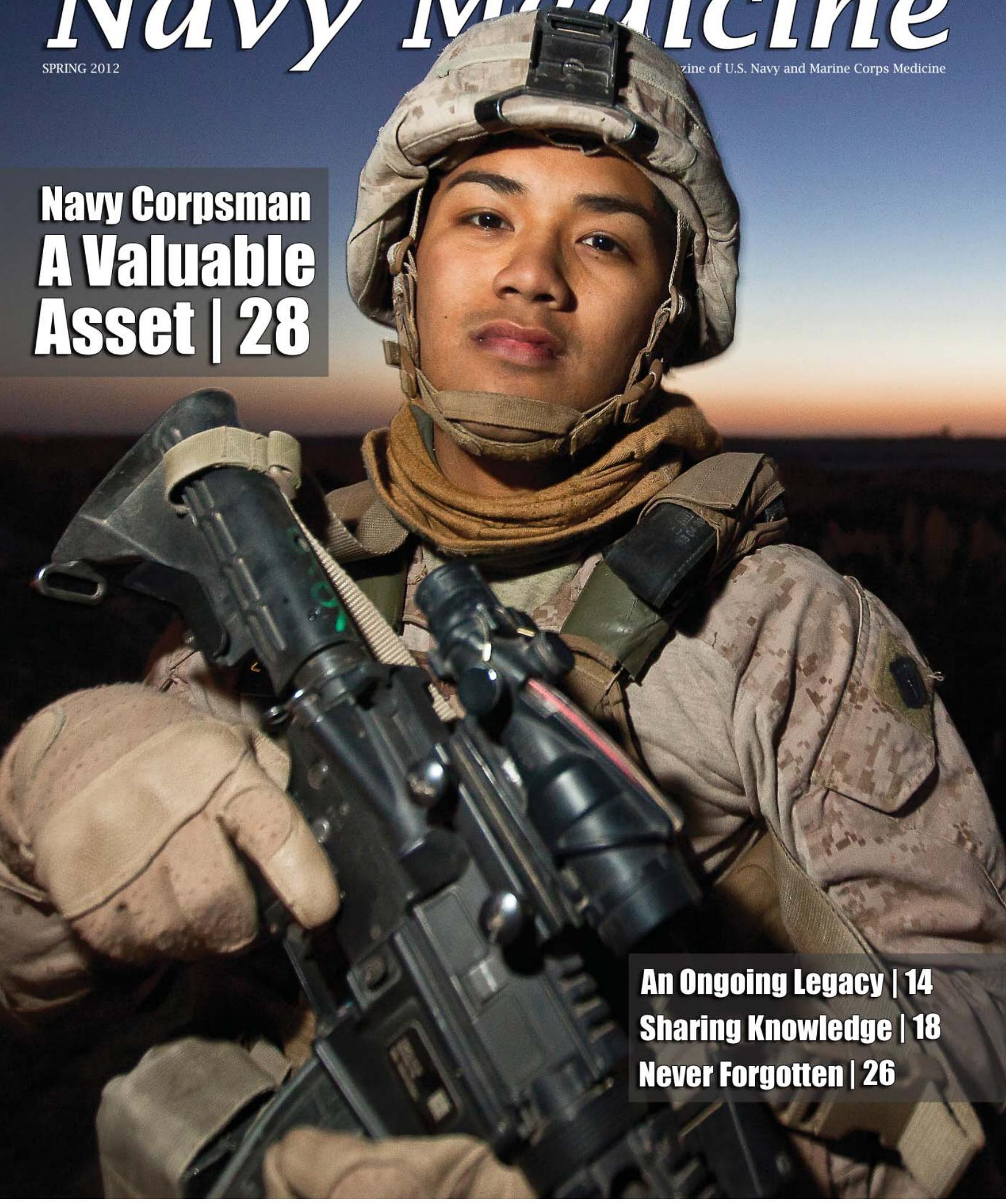
Navy Medicine

SPRING 2012

Magazine of U.S. Navy and Marine Corps Medicine

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Navy Medicine

Official Magazine of U.S. Navy and
Marine Corps Medicine

Vol. 104 No.3 • Spring 2012

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NAVY MEDICINE is the professional magazine of the Navy Medical Department community. Its purpose is to educate its readers on Navy Medicine missions and programs. This magazine will also draw upon the medical department's rich historical legacy to instill a sense of pride and professionalism among the Navy Medical Department community and to enhance reader awareness of the increasing relevance of Navy Medicine in and for our nation's defense.

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Articles must be between 600-1,000 words.

All articles must be present tense/active voice.

Photos must be minimum 300 dpi.

Photos showing action are preferred.

All photos must be accompanied by a caption and photo credit.

Subjects considered:

Scuttlebutt: Stories about activities at MTFs and the field.

Photo Album: Action shots from across Navy Medicine.

Feature Articles: Stories featuring interesting contributions of Navy Medicine to military operations including everything from combat support to Humanitarian Relief/Disaster Response will be considered. Please contact Shoshona Pilip-Florea (shoshona.pilip-florea@med.navy.mil) for current theme of issue in progress.

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Quality Care: Anything that improves the quality of care for our patients.

IT, QA: Any articles showing how Navy Medicine is utilizing the electronic age.

Shipmates: Anything interesting about our shipmates working in the healthcare field in the Department of the Navy.

All submissions must be accompanied by complete contact information for author. In the event there is more than one author please assign one author to be primary correspondent.

Feedback Welcome
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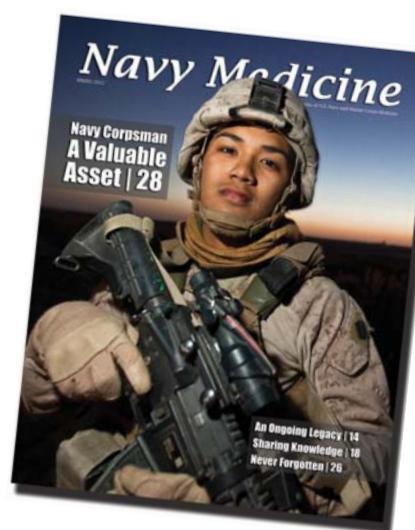
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On the Cover

Navy Hospital Corpsman 3rd Class Michael Soto, the corpsman for Bridge Platoon, Alpha Company, 9th Engineer Support Battalion, poses for a photo in the district of Garmsir, Helmand province. Soto, a native of Lake Villa, Ill., has been with 9th ESB for the past year and is the primary caregiver to the Marines of bridge platoon as they serve on the frontlines of Afghanistan. (Photo by Marine Corps Cpl. Bryan Nygaard)

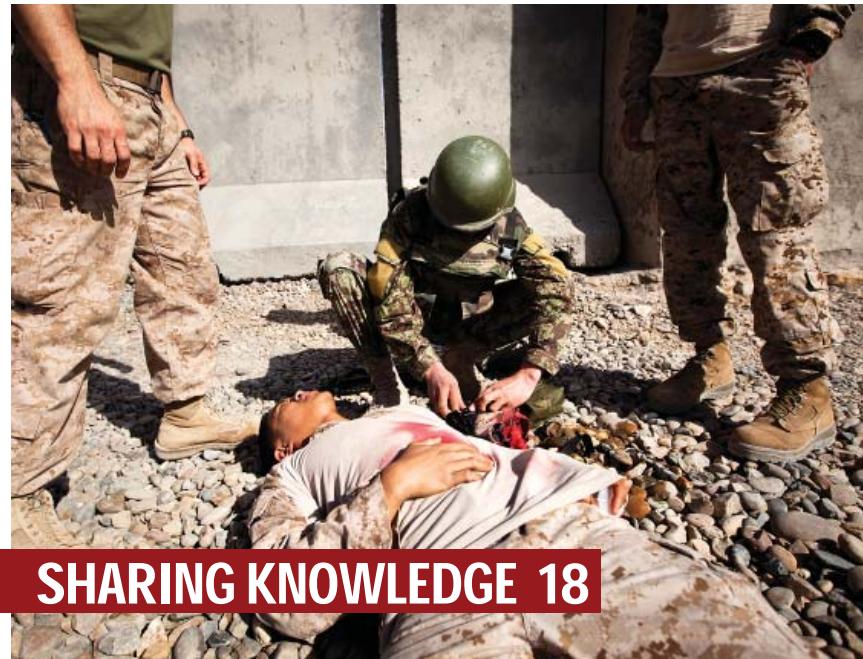
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Supporting the 21st Century Sailor and Marine

One of my top priorities since becoming the Navy Surgeon General last November is to ensure that Navy Medicine is strategically aligned with the imperatives and priorities of the Secretary of the Navy, Chief of Naval Operations and Commandant of the Marine Corps. Our focus remains in alignment with our Navy and Marine Corps leadership as we support the defense strategic guidance, "Sustaining U.S. Global Leadership: Priorities for the 21st Century" issued by the President and Secretary of Defense earlier this year. The Chief of Naval Operations in his "Sailing Directions" has articulated the Navy's core responsibilities and Navy Medicine stands ready as we move forward at this pivotal time in our history.

As such, I am also proud to report that Navy Medicine is a key partner in supporting the new "21st Century Sailor and Marine" initiative that the Secretary of the Navy announced recently. This initiative is a set of objectives, programs and policies across a spectrum of wellness that maximizes the personal readiness of Sailors, Marines and their families.

Personal readiness of our people directly relates to our ability to maintain a fit and ready force to answer the call when our nation needs us. The programs included as part of the new initia-

tive focus on building and nurturing the resiliency of the force well after a decade of combat.

Everyday across the globe we support the operational mission capabilities of the Navy and Marine Corps by maintaining warfighting readiness, delivering the continuum of care from the battlefield to the hospital and protecting the health of those entrusted to our care. Force Health Protection is a true epicenter of everything we do. It is an expression of our Core Values of Honor, Courage and Commitment and it is imperative for our worldwide engagement in support of expeditionary medical operations and combat casualty care. It is at the very foundation of our continuum of care in support of the warfighter and optimizes our ability to promote, protect and restore their health. It is both an honor and an obligation.

The heart of the new "21st Century Sailor and Marine" initiative is to provide preventive measures to ensure the readiness of our naval personnel. Health is not simply the absence of infirmity or disease – it is the complete state of physical, mental, spiritual and social well being. The overall goal of the new program is to provide Sailors and



and Marines with the support network, health care, and skills needed so they can overcome any adversity and thrive. We aim to build a culture where all leaders recognize the importance of providing timely support to our Sailors and their families which is key to military readiness.

The men and women of Navy Medicine will play a vital role in supporting this initiative. As the Navy continues to highlight the dangers of prescription and synthetic drug abuse, deglamorize the use of alcohol and smoking and reinforce healthy alternatives while on liberty, the line community will look to us to provide them our support and expertise in these areas. I have every confidence that you will all be there ready to support them and this important program.

Thank you for suiting up every day. I am so proud to be part of your team, and it is my honor to serve with you. I look forward to seeing you around the Fleet.

--Vice Adm. Matthew L. Nathan

The overall goal of the new program is to provide Sailors and Marines with the support network, health care, and skills needed so they can overcome any adversity and thrive.

Increasing Family Readiness

The old saying about the Navy family, "If the Navy wants you to have a family, they'll issue you one in your sea bag!" is no longer operative in today's Navy. The family is no longer seen as an extension of the Sailor; now it's quite the opposite. Today, clearly, we know Sailors and families are one in the same, because of this, we must ensure our families are always ready. A strong commitment to Family Readiness will be reflected in the success of our Navy Medicine mission, as it serves to provide a smooth transition during deployments, with emphasis on increased support during deployment and reintegration.

Since Navy Medicine operates as an agile, flexible and forward force, both the Sailor and family must be ready. Personal and family readiness is the ability of Sailor and their family to effectively balance the challenges of a military lifestyle, family, career, and mission events. "Family readiness is unit readiness."

Both the Sailor and the command leadership need to take time out – before deployment – to ensure that Navy families are as prepared as they can be to face the demands of a deployment. A family not ready for deploy is the same as the Sailor not being ready for deployment. Personal and family readiness has been identified as a force multiplier and is equally important as individual, equipment, and deployment readiness. With families in a higher state of readiness, Sailors are better able to perform their assigned missions effectively, efficiently, and safely, thereby achieving a higher state of unit readiness.

The Navy family support infrastructure is designed to ensure that Navy families are proactively prepared for mobilizations, deployments, and prolonged separations through a network of support systems and communication channels. These channels link the command, family and Sailor, resulting in a resilient, well-informed family. A prepared Navy family is adaptable to the Navy's operating environment and capable of navigating through, and utilizing, the many support services available.

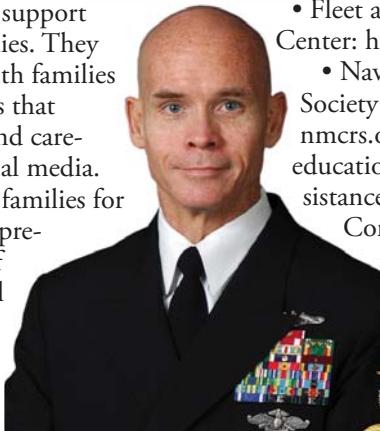
The command's leadership, has the

responsibility to provide support to their Sailors and families. They communicate directly with families through various channels that may include the command careline, newsletters and social media. Leadership also prepares families for deployments by hosting pre-deployment briefs. Chief Petty Officers play a vital role by ensuring Sailors stay engaged in this process.

Proactive leaders and Sailors must focus on resources that prepare Navy families for mobilization, deployment, and prolonged separations using all the resources available. The Family Readiness Toolkit is a valuable resource to ensure family readiness. It allows a Sailor and their family to prepare, in a timely manner, items such as financial preparedness, an updated will, updated Page 2, and Powers of Attorney. Other resources that are extremely helpful to mission success are the Command Ombudsman, Family Readiness Groups, Fleet and Family Support Centers (including the Command Financial Specialist) and Chaplains. These resources provide a network of support systems and communication channels that link the command, family and Sailor, resulting well prepared and adaptable family.

As leaders, our priority of developing and leading Sailors in our charge has never changed. A ready Sailor and family is an integral part the Navy's warfighting capability. When a Sailor and their family are ready, the Sailor is safer, focused on the mission, and confident their family has the resources they need to thrive.

For more information on available resources contact:



- Fleet and Family Support Center: <http://www.nffsp.org>
- Navy-Marine Corps Relief Society (NMCRS): www.nmcrs.org provides financial, educational, and other assistance to Navy and Marine Corps families.

• Military One Source: www.militaryonesource.com provides service members and their family free newsletters, webinars, educational materials and tax preparation.

• Military Homefront: www.militaryhomefront.dod.mil is the department of defense website for official Military Community and Family Policy (MC&FP) program information, policy and guidance designed to help troops and their families.

• The American Red Cross: <http://www.redcross.org> links members of the U.S. Armed forces with their families during a crisis. Twenty-four hours a day, 365 days a Year, the Red Cross can quickly send emergency communications to deployed service members on behalf of their family.

• Naval Service Familyline: <http://www.cnic.navy.mil> provides mentoring programs as well as free printed and online materials to families of the sea services.

• CNIC Fleet and Family Readiness: http://www.cnic.navy.mil/CNIC_HQ_Site/WhatWeDo/FleetandFamilyReadiness/index.htm

• Family Readiness Toolkit: <http://ra.defense.gov/documents/publications/Commanders%20Toolkit%200328.pdf>

-- **Force Master Chief
Sherman E. Boss**

Family readiness is unit readiness.



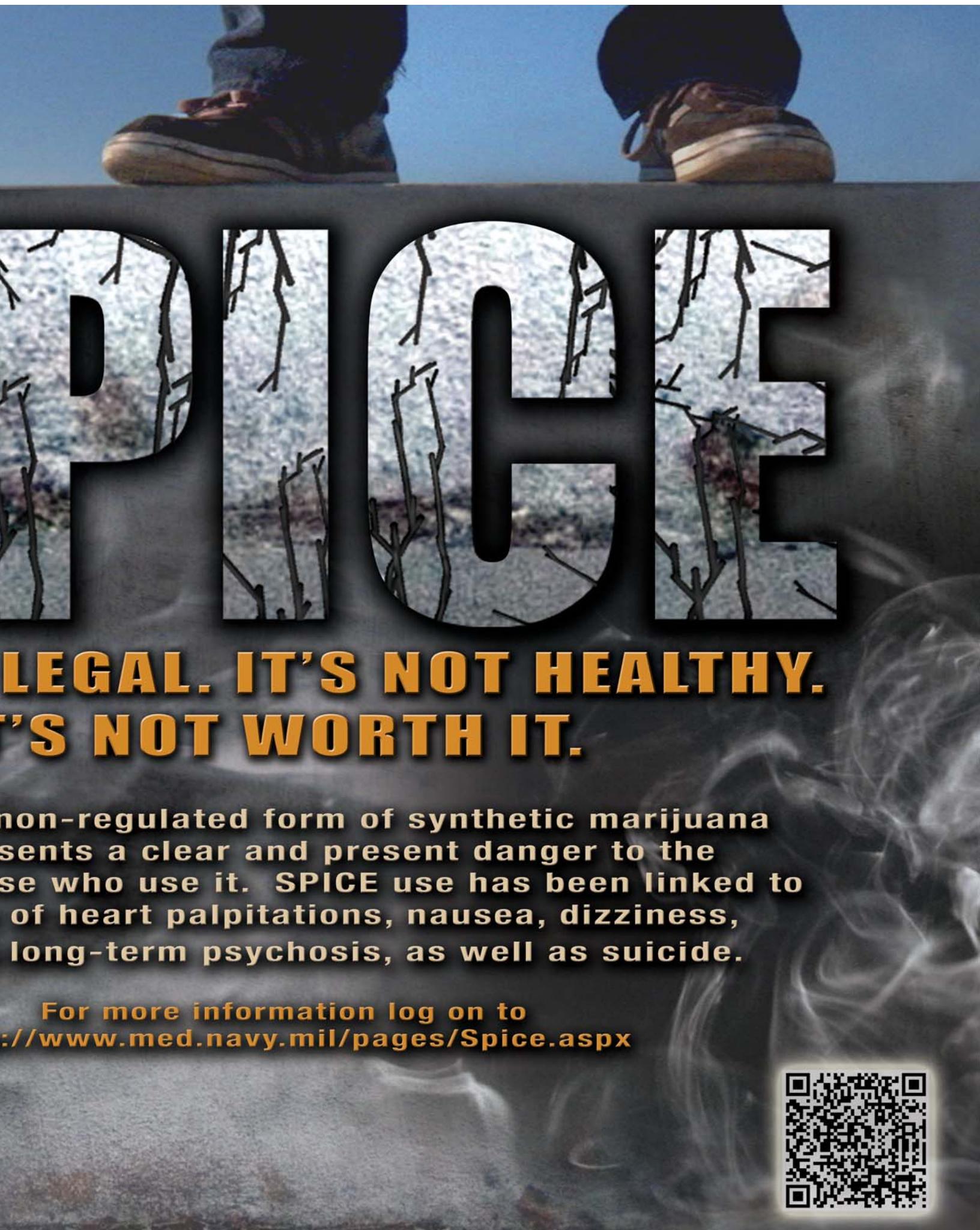
IT'S NOT IT

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A Navy doctor with 1st Medical Battalion, 1st Marine Logistics Group, performs continuous chest compressions in order to save a simulated casualty during a field training exercise aboard Camp Pendleton, Calif. As part of the training, several waves of simulated casualties continuously arrived on site and required immediate treatments to simulate the stress of combat.

UNDER PRESSURE

Exercise Prepares Sailors for the Realities of Deployments

Story and photos by
Marine Corps Cpl. Khoa Pelczar
1st Marine Logistics Group

"Marine, do you know your name? Do you know where you are," the corpsman asked with no response. "It's OK, we're here to take care of you."

Navy Surgeons, doctors, nurses and corpsmen with 1st Medical Battalion, 1st Marine Logistics Group, participated in a field training exercise, Jan. 26.

"The focus of this training event is to successfully provide medical support to Marines and Sailors in the field environment,"

said Navy Cmdr. Tuan Hoang, surgeon, officer in charge of field surgical team. "Basically we're putting the team together and seeing how they work under pressure while operating the Shock Trauma Platoon and the Forward Resuscitative Surgical System."

As part of the training, several waves of simulated casualties continuously arrived on site and required immediate treatment, explained Hoang, 42, from Chula Vista, Calif. Medical staffs were to identify the more critical cases to provide immediate response in the FRSS, as well as to divide the team

properly to treat everyone.

"The team came together tremendously," Hoang said. "They're working as a team like a well oiled machine."

To these men and women, looking for wounds and treating patients has become second nature as they've provided medical care to service members so often, explained Hospital Corpsman 3rd Class Jared Nixon.

As he observed his fellow caretakers providing aid to the simulated casualties while playing the role of a casualty himself, Nixon, 22, from Santa Cruz, Calif., said



Navy Hospital Corpsman 3rd Class Jared Nixon, 1st Medical Battalion, 1st Marine Logistics Group, plays the role of a casualty during a field training exercise aboard Camp Pendleton, Calif.

the stressful training environment is exactly what they needed to prepare for the deployment.

"It's no surprise that they know how to treat the patients. The training simulates stress and that's the most important part of our job at this point," said Nixon. "If we learn how to deal with that stress now, we'll be much more successful in theater as nothing will come as a surprise to us."

Nixon not only helped his fellow service members train for deployment, he said he had also learned an important lesson.

"As I was laying there on the opposite side of the operating table, I learned how scary it would be," he said. "Coming into a situation such as this where you have no control of where your life was going to go, and you're completely depending on somebody else, it's a scary thing. Knowing that these corpsmen were given great training and so full of confidence really helps put that feeling at ease. So I hope that a lot of the Marines



Navy Surgeons, doctors and nurses with 1st Medical Battalion, 1st Marine Logistics Group, conduct an operation on a simulated casualty during a field training exercise aboard Camp Pendleton, Calif.

here can take confidence out of this training as well, knowing that their corpsmen are doing a great job because this is a very realistic simulation."

Hoang was thrilled with the result of the training exercise.

"I'm impressed with the effort that everyone put forth during this

training exercise," Hoang said. "It is our job and our duty to take care of these guys and bring them home. Nothing can even come close to the feelings I get when my old patients come up to thank me and hug me. It is so great to see them back up and walking around again." +

THE KEY TO FAMILY READINESS

Story and photos by Regena Kowitz
Naval Hospital Beaufort Public Affairs

Family readiness is an essential component of mission readiness. When families are resilient and equipped with the knowledge and resources necessary for navigating military life, their Sailor or Marine can fully focus on the mission at hand, whether they are a deck seaman or a battalion commander.

Naturally, good health is also an integral part of family readiness, because when a service member is worried about a sick spouse or child, they may find it difficult, if not impossible, to focus on their unit's mission. At Naval Hospital Beaufort, the public health directorate knows that one of the best ways to keep family members healthy is by protecting them against vaccine-preventable diseases, particularly seasonal influenza (flu).

Because children are one of the groups most susceptible to developing serious flu-related complications and they make up a significant segment of Naval Hospital Beaufort's beneficiaries, it only made sense for the hospital's public health staff to work with the other local organizations including Department of Defense Education Activity (DoDEA) schools and child development centers (CDC) to coordinate efforts at protecting our most vulnerable family members against the flu.

"With three CDC's, two youth centers, and three elementary schools situated on local installations, it is important to build strong inter-organizational and community relationships to keep the children healthy," said Lt. Cmdr. Shawn Garcia, preventive medicine physician and head of the preventive medicine department. "Our public health directorate

excels in this by reaching out to these organizations."

For the past five years at the start of flu season, preventive medicine staff has coordinated with the nurses from the three DoDEA schools located onsite at the Laurel Bay military housing area as well as the nurse for the youth centers and the CDC's aboard Marine Corps Air Station (MCAS) Beaufort, Marine Corps Recruit Depot (MCRD) Parris Island, and Laurel Bay to set up shot exercises (SHOTEX) at each location.

By making it as convenient as possible to receive the influenza vaccine, preventive medicine staff has found that more family members are getting immunized, which is good for medical and family readiness. During last year's massive SHOTEX in October 2011, staff from the hospital gave 597 flu vaccinations in one day to children as well as to parents and school and CDC staffers.

"We bring the vaccine to the children so parents don't have to take time off from work," said Garcia. "Parents and staff are also encouraged to get the vaccine. By keeping the adults in their lives healthy, we minimize the risk of exposing infants and children to influenza."

According to Garcia, children are more susceptible to many illnesses because their immune systems are not fully matured. An average of 20,000 children under the age of five are hospitalized due to complications from influenza and 46-153 children die from the flu every year according to the Centers for Disease Control. Children younger than two years of age are the most likely population to experience severe complications from the disease. Currently, the vaccine that is used for seasonal flu is only approved

for children older than six months, which is why it is important to immunize the older children and adults who spend time with them.

Because of the volume of patients at each school, preventive medicine sends volunteer teams of at least one nurse and six hospital corpsmen to each school to assist the school nurse with the SHOTEX. At the youth centers and CDC's, although the volume of patients is smaller than the schools, there is only one nurse for all locations so, in addition to teams of corpsmen, the hospital provides additional nurses to lend a hand at each center. Hospital staff assists with reviewing all the paperwork to ensure that children are being screened for contraindications and receiving the correct form of the vaccine, preparing the vaccine for each child and ensuring the correct dose, and administering the vaccine either via injection or intranasal.

The hospital's partnership with the nurses at the three DoDEA schools – Galer Elementary, Elliott Elementary, and Bolden Elementary/Middle School – is also vital to the success of the annual SHOTEX.

"We collaborate with preventive medicine to send home packets of information with each student for their parents to review well in advance of the scheduled vaccination day," said Renee Willis, school nurse at Bolden. "We include the date and time of the vaccinations, contraindications, Vaccine Information Sheets, and screening forms for the parents to sign."

According to Zina Egan, school nurse at Elliott, about 80 percent of the school's staff also took advantage of the opportunity to receive their influenza vaccine last October. Egan said that she and her fellow school nurses welcome the support and partnership from the hospital because children need to be healthy to learn.

Debra Bola, a nurse with the Marine Corps Community Services (MCCS) youth centers and CDC's, was thoroughly impressed not only with the support she received from preventive medicine in preparing for the most recent SHOTEX, but also with how well the staff interacted with the children during the event.

"The military providers were wonderful with the children," said Bola. "As to be expected, there were a few children not thrilled about receiving the vaccination, but they did great. The majority of the infants and children did fantastic with very few tears."

According to Bola, the hospital staff was so efficient with preparing the paperwork, communicating with each other and CDC staff, and administering the vaccinations that most of the children were finished and back to playing in their classrooms in no time at all.

"Naval Hospital Beaufort has been a constant support to me as a CDC nurse," said Bola. "They strive



Lilly Garcia, one of the children to receive her flu vaccination at the Marine Corp Recruit Depot, Parris Island child development center, looks on as Hospital Corpsman 3rd Class Joshua Cornell prepares her for a shot. (Photo by Regena Kowitz)

to provide the very best medical care for our active duty military, spouses, and their children. They are, in my opinion, nothing short of outstanding."

In addition to long hours preparing for and participating in the SHOTEX's conducted at the schools and CDC's, Rose Marks and Luvelle Taylor, licensed practical nurses who work in the hospital's immunization clinic, perform outreach on a daily basis to educate patients on the benefits of all vaccines, including seasonal flu. Their efforts help ensure that any child or adult who was unable to attend one of the SHOTEX's can still get protected from vaccine-preventable illnesses and remain healthy during flu season.

By fostering enduring partnerships with local organizations that play a key role in taking care of military families and serving as an advocate for disease prevention, Naval Hospital Beaufort is able to help keep those families healthy and well, so that their Sailors and Marines can keep their focus on remaining mission ready. +

Navy Doctors Save A Life Aboard Plane

By Mass Communication Specialist 3rd Class Jessica Tounzen
Naval Medical Center San Diego Public Affairs

Two doctors from Naval Medical Center San Diego (NMCSD) boarded a plane to San Antonio, Texas, Feb. 8, for a training course that would help them further their knowledge and their careers. But en route to their scheduled destination, they encountered a different sort of training.

Third-year NMCSD Otolaryngology residents Lt. (Dr.) Gregory Capra and Lt. (Dr.) Art Ambrosio were slated to attend a cadaver dissection course located at Ft. Sam Houston's Brooke Army Medical Center. They had operated on cadavers before, but this time they would be training in a joint environment, alongside Air Force and Army personnel. A couple hours into their non-stop flight, however, things changed.

"The flight crew started asking if there were any medical personnel on the plane, especially physicians," said Ambrosio. "At first I thought it was just heartburn, someone who could walk and talk, maybe someone was choking, like you see in movies and television."

He and Capra immediately identified themselves as physicians and made their way toward the front of the plane, where flight crew and passengers were carrying a male passenger to the aisle. Ambrosio and Capra started taking an inventory of the plane's first-aid kits. They found an Ambu bag (self-inflating bag valve mask resuscitator), advanced cardiac life support medication, and an automated external defibrillator (AED). Meanwhile, an anesthesiologist on

the flight had found the man's pulse and began performing bag-mask ventilation using the Ambu bag. Capra and Ambrosio continued to reassess the patient's status, as they had been taught during their time at NMCSD. A check of the patient's carotid artery yielded no pulse, and they proceeded onto the next step: cardiopulmonary resuscitation (CPR).

After completing approximately two cycles of CPR, the team placed the AED on the patient to check for a shockable heart rhythm, but that was unsuccessful: the AED read the patient's heart rhythm as one that was non-shockable, so Capra and Ambro-

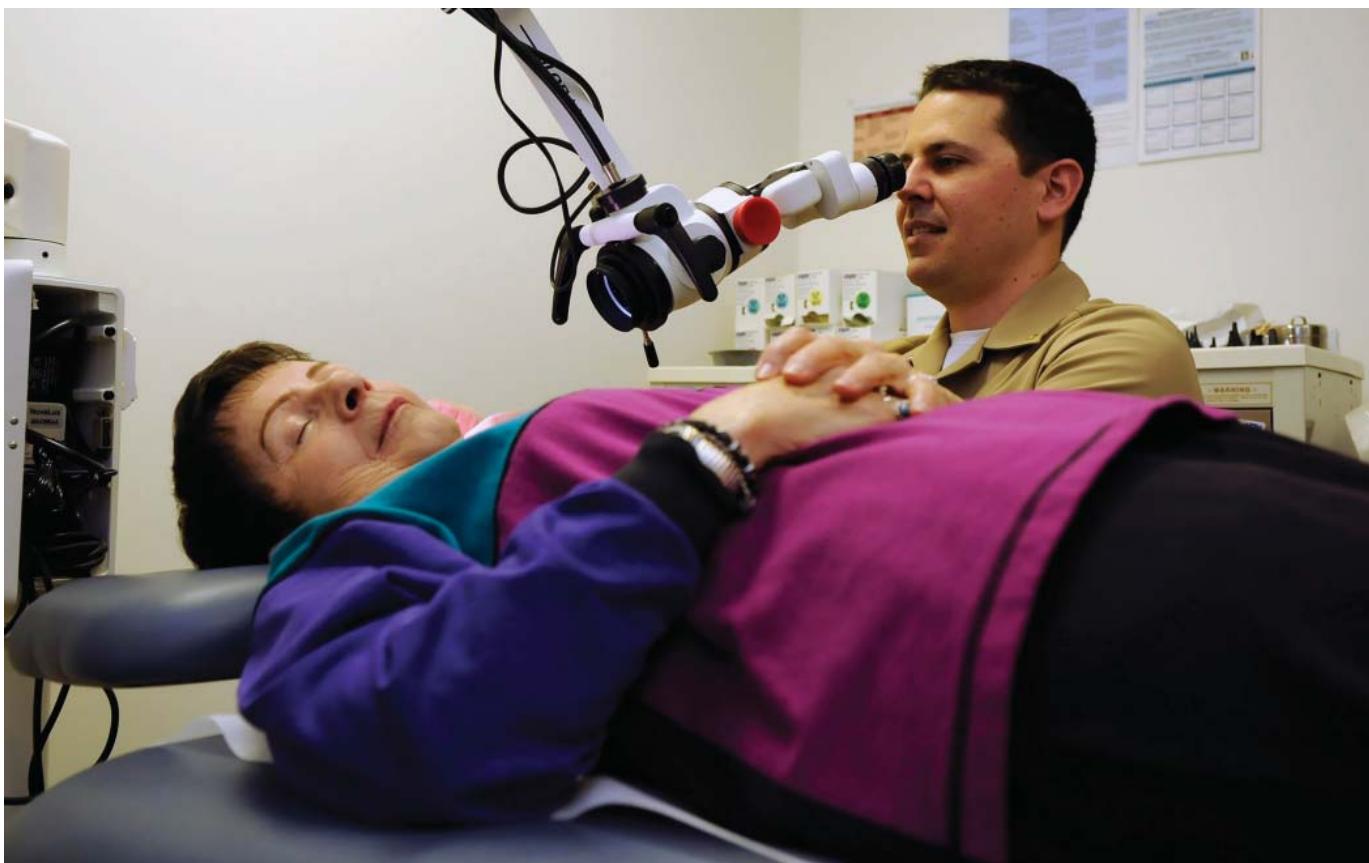
sio had to resume chest compressions.

The next step would normally be an injection of epinephrine, which is commonly used to treat cardiac arrest and other situations of reduced cardiac output. But the patient's veins were proving inaccessible after a nurse on the plane attempted to place an intravenous (IV) line without any success.

A quick interview with the patient's wife revealed he had a history of airway obstruction. To combat this, Capra performed a jaw thrust, elevating the jaw and opening up the patient's airway. Ambrosio inserted an oropharyngeal airway, a plastic



Lt. Art Ambrosio, a physician assigned to the Naval Medical Center San Diego otolaryngology department, a branch of medicine and surgery that specializes in the diagnosis and treatment of ear, nose, throat, and head and neck disorders, examines Jesusa Madarang. Ambrosio is a third-year resident who, along with fellow otolaryngology resident Lt. Gregory Capra, provided life-saving procedures to an unconscious passenger during a flight to a training course in San Antonio, Texas. (Photos by Mass Communication Specialist 3rd Class Jessica L. Tounzen)



Lt. Gregory Capra, a physician assigned to the Naval Medical Center San Diego otolaryngology department, examines patient **Jeanne Doliben Bogard**. Capra is a third-year resident who, along with fellow otolaryngology resident **Lt. Art Ambrosio**, provided life-saving procedures to an unconscious passenger during a flight to a training course in San Antonio, Texas.

hook-shaped device that helps improve ventilation.

At last, the patient began to respond. "He started squeezing my hand really hard and tried to move it when I was performing the jaw thrust," said Capra. "He wasn't very strong, but there was intent—it was a purposeful movement, and that was a good sign that he was becoming more responsive."

Meanwhile, in the cockpit, the pilot began routing the plane for an emergency landing in El Paso, Texas.

"We were still unbelted, kind of sitting in the aisle, and we were preparing for a rough landing," said Ambrosio, laughing. "When the flight crew announced that we'd landed, we were both like, 'That's it?'. It was very smooth. We never once felt like our safety was in jeopardy."

Soon, paramedics came on board and took custody of the patient. Capra and Ambrosio received a quick debriefing from the airline. They were asked their names, where they were from, where they worked, what equipment they used and whether it was useful. Both doctors agreed the

available first-aid supplies were more high-tech than they had expected to see on an airplane, miles and miles from a medical facility.

The third-year residents returned to their seats amid clapping and cheering. One passenger gave Capra a high-five. Once they were able to sit down and take a breath, reality began to sink in.

"We were in shock that it had actually happened, and that we were in the middle of it all," said Capra. "We were like, 'Did that just happen to us?'. It was very surreal."

Both doctors agreed the situation might have gone quite differently had they not received the proper training and experience during their residency at NMCSD's Otolaryngology clinic.

"We deal with a lot of airway

issues in the clinic," said Ambrosio. "Identifying the carotid artery, checking for a pulse and establishing airways are all things we do every day and things we're pretty comfortable with. At the hospital, we've also gotten accustomed to different types of patients and various surgeries as well: kids' tonsils, thyroid cancer, airway reconstructions, sinus surgeries, and so on. And there are different things they teach us here like poise under pressure, no wasted movements, knowing what you mean and meaning what you say...all of that helped us respond to this situation quickly and efficiently."

For more news from Naval Medical Center San Diego, visit www.navy.mil/local/sd/ or <http://www.med.navy.mil/sites/nmcasd/>.

"At first I thought it was just heartburn, someone who could walk and talk, maybe someone was choking, like you see in movies and television."

- Lt. Art Ambrosio, a physician assigned to the Naval Medical Center San Diego otolaryngology department

An Ongoing Legacy

Naval Hospital Bremerton supports Operation Iraqi Freedom and Operation New Dawn

By Douglas H. Stutz
Naval Hospital Bremerton Public Affairs

With 2011 wrapped up, so has the deployment of Naval Hospital Bremerton (NHB) personnel to Iraq. From the onset of Operation Iraqi Freedom (OIF) in 2003 to the final days of Operation New Dawn (OND) in 2011, Bremerton staff members continually deployed for medical support inside and out of the country.

From the cities along the Euphrates River in rural Anbar Province to Basra on the Al Faw Peninsula, from the northern urban enclave of Mosul to Baghdad's Green Zone and Sadr City and many places in between, NHB doctors, nurses, hospital corpsmen and support staff were there.

They embedded with various units that included 1st Medical Battalion, Special Warfare Group Iraq, 20th Seabee Readiness Group, Civil Affairs, Warrior Transition Team, 1st Marine Expedi-

tary Forces, 3d Marine Air Wing, 1st Marine Logistic Group and 1st Force Service Support Group.

NHB sent nearly 300 staff members to augment Fleet Hospital Eight at Naval Base Rota Spain in early 2003 to gear up for Operation Iraqi Freedom, and also deployed approximately 200 additional staff members to help run Expeditionary Medical Facility Kuwait that rendered support to the ground mission just north of the Kuwaiti border inside Iraq through 2011.

NHB staff members were directly involved in assisting with caring for the almost 4,500 American troop fatalities and the approximately 32,000 service men and women wounded throughout OIF and OND.

Yet the nine years for many NHB staff members, some who did multiple deployments, produced more than

simple statistics and accumulated data. The time spent brought many to the forefront of their chosen Navy Medicine profession, in ways that forever remain etched in their professional bearing and personal mindset.

At the Beginning

"I don't recall exactly when I knew that Fleet Hospital Eight would play a major role, but soon after 9/11, we knew something was ramping up," recalled retired Hospital Corpsman Chief Steven C. Jackson, who deployed from March to September 2003 as leading chief petty officer for Fleet Hospital Eight Surgical Services. "We were materially ready thanks to good preparation and training, but we had no idea what to expect or how it would affect our own lives."

NHB received orders February 2003 to staff, ready and deploy personnel to



Navy hospital corpsmen continually treated more than just their own, also providing needed medical care to local civilian populace in many locales throughout Iraq. (Photo courtesy of Naval Hospital Bremerton, Wash.)

stand up and support a 116-bed Expeditionary Medical Facility (EMF) to Rota, Spain, in support of Operations Enduring/Iraqi Freedom (OEF/OIF) and possible future contingencies. The Operational Readiness Department coordinated all logistics to marshal, ready and deploy 274 personnel from NHB as well as from nine other gaining commands around the country to form Fleet Hospital Eight.

"Our first group set up the EMF on a vacant lot next to the flight line and by mid-deployment we had built the 250-bed fleet hospital in tent city," said retired Hospital Corpsman Senior Chief Timothy D. Stewart, who was assigned to Inpatient Services as the ward leading chief petty officer. "It seems like so long ago, and we probably weren't prepared for what was to be done. My fellow corpsmen drove stakes and erected

a quality structure and cared for our wounded warriors to the best of their abilities. It was a pleasure to serve with them as they did all the hard stuff."

Stewart noted that they treated almost 1,700 patients with 78 hospital corpsmen running seven wards and worked port to starboard (12 hours on, 12 hours off) shifts nearly the entire time deployed in 2003. "I was extremely proud of how well my corpsmen completed their duties. We received accolades from the Soldiers and Marines we were treating," he said.

Jackson attests to the mettle and resolve of the fleet hospital staff to deal with the influx of incoming injured from the battlefield.

"I cannot recall a time in my life when I've been more proud of the Navy and being a corpsman. Having such an outstanding team to work with inspired

me beyond words. Watching my corpsmen perform flawlessly and without complaint, often working long hours without a break, sometimes with no end in sight, literally brought a tear to my eye," said Jackson.

Jackson also came away with high regard for the rest of the medical team at the fleet hospital. "Seeing some of the 'miracles' performed by our surgeons and nurses was truly memorable. They handled facial reconstructions, avulsed limbs, severe eye injuries and more. And watching our junior corpsmen step up to effectively and efficiently handle the support challenge turned them quickly into seasoned professionals," Jackson said.

In-Country

When Lt. Roger Williams arrived in Baghdad's Green Zone in 2007, his initial thoughts of being in a safe and se-



Navy Hospital Corpsman 2nd Class Andrew Chase, Eugene Ore. native, poses with several members of the Iraqi security forces during his tour with Regimental Combat Team 1, 1st Marine Division. (Photo courtesy of Naval Hospital Bremerton, Wash.)

cure area were quickly tested. "I was actually doing the tourist thing, thinking I was completely safe. I was swimming with my Army counterpart in what had been renamed 'Liberty Pool,' one of Saddam's former personal-use only pools, when my buddy said that it had been a while since any rocket or mortar attack had happened. I thought he was kidding and not five minutes later, we heard incoming rounds landing all over the place. That was really my 'welcome to Baghdad' moment," said Williams, working at NHB's Operating Room.

The occasional shelling actually never abated when Williams was there, and it became part of the almost unreal aspect of deployment. "The attacks added to the surreal aspect of being there. Some would hunker down and others would go about their business as best and safely as they could and just dealt with it," he said.

Williams worked as a perioperative nurse attached to Forward Surgical Team assisting with the 28th Combat Support Hospital in the Green Zone, helping care for troops, contractors, and Iraqi's. "We operated on all who needed us," he said.

The surreal gave way to heartrending. There were two vivid and equally tragic reminders of the war at hand.

Army Capt. Maria Ines Ortiz was killed on July 10 during a mortar attack on the Green Zone. She was the first Army nurse killed by hostile fire since the Vietnam War. The attack also killed two other people and wounded 18 more. "It was very sad. I had met her. I knew her. She was on the way from the Emergency Room to the Operating Room when we lost her," said Williams, who also deployed with Fleet Hospital Eight four years earlier. "We were all devastated. Lt. Cmdr. Amy White, our current Emergency Medicine division officer, worked with her in the Intensive Care Unit."

Ortiz was one of many that Williams and others worked to save. Most of those wounded in Iraq did make it out for further treatment. Advances in training, experience, equipment and technology has brought the survival rate of battlefield casualties up dramatically —some estimates as high as 98 percent — compared to former wars.

Another colleague drove up one day in a Humvee filled with casualties from a sniper attack. A local Iraqi mother was wailing in shock over her two young daughters who both had been shot and in immediate need of medical care. "We could see that one of the daughters was already dead. I couldn't even begin to imagine the grief the mom was experi-

encing. That tragic incident really stood out about the horrors of war," said Williams, a father with daughters and one son of his own.

"I had two tours in Iraq," remembered Hospital Corpsman Chief Nathan W. Sims, former leading chief petty officer for Operational Readiness Department. "The first time I was with 1st Battalion 5th Marines at Ar Ramadi in al-Anbar province, from February to August 2005. Things were pretty bad at the time. We took mortars and rockets almost daily. We had several large vehicle-borne improvised explosive devices and lots of contact with the enemy. We were busy doing all we could. We lost 15 Marines and one great corpsman, HM2 Caesar "Cid" Baez. Cid was an inspiration to everyone that he served with." Baez, from Pomona, Calif., died as a result of enemy small arms fire while conducting combat operations.

As was the case in wars past, medical advances were made under battlefield conditions that have enabled Navy hospital corpsmen like Sims to deal with the wounded as never before. Compiled BUMED statistics show that casualties today have a 90 percent and higher chance of surviving, a quantum leap even from the first Gulf War over a dozen years earlier.

One medical advancement carried out during OIF was improving upon the personal protective body armor. "I saw, up close, body armor saving a life," Sims said. "We had one round stopped by it. The bullet almost went all the way through a protective plate on one of our Marines. It didn't enter his body, but he did end up getting a huge bruise. We'll take that any day over the alternative."

Self-applied Combat Application Tourniquets to stem blood loss were implemented during urban warfare and roadside bombing attacks. "The CAT tourniquets are a good fallback to help stop bleeding, especially for all Marines on patrol," said Sims, noting that there was also medical care advances made using new technology in surgery that help to prevent infection.

Sims deployed again in 2008 to Al Asad with Naval Mobile Construction Battalion (NMCB) 17 and noticed improvement with treating the wounded and getting them out of harm's way. "We used to have undersized vehicles that a litter wouldn't fit into," said

"I don't recall exactly when I knew that Fleet Hospital Eight would play a major role, but soon after 9/11, we knew something was ramping up."

-Retired Hospital Corpsman Chief Steven C. Jackson, who deployed from March to September 2003 as leading chief petty officer for Fleet Hospital Eight Surgical Services.

Sims. "When we got the Mine Resistant Ambush Protected (MRAP) armored vehicle, it was a vast improvement. A litter could fit inside with stable protection when transporting injured personnel."

"Even with all the advanced technology that has been added, the number one asset we had in Iraq to save lives was our hospital corpsmen," Sims stressed. "It's the training that every corpsman goes through and knowing the basic ABCs (airway, breathing, circulation) for saving lives out there on patrol."

Training and experience trumps all in caring for troops, yet the ability to provide medical assistance to Iraqi civilians was also vital to the success for many missions, commented Chief Hospital Corpsman Emiliano Rabor. Rabor served as part of the Al Anbar Provincial Military Transition Team 2007-2008. "There were times we provided more medical care when on patrol than anything else. Medical care was considered a blessing where we were. We treated so many civilian cases. Showing compassion and care to the medical needs of local Iraqis allowed us to gain some mutual respect and cultural understanding," said Rabor.

"When I went back for the second time, there really was an improvement in the climate and the lives of the Iraqi people," recalled Sims, noting the difference between his initial and following tour. "It was a whole different world the second time around. I believe that the sacrifices made by all who have served in Iraq have meaning. We have all helped the Iraqi people by improving their quality of life and making sure that they don't live in a constant state of fear."

Toward the End

Hospital Corpsman Master Chief Tom Countryman's one-year deploy-

ment from 2010 through 2011 as command master chief at Expeditionary Medical Facility Kuwait covered a time when the drawdown of troops in Iraq went from 90,000 to 50,000. The wartime violence abated some but didn't completely diminish.

"It didn't mean that our work load got any easier, and it didn't mean we just stopped doing what needed to be done. We continued to provide urgent and emergent expeditionary medicine and primary care, as well as combat force health sustainment. Those were our main missions," Countryman explained.

EMF Kuwait served as a Level III hospital with top-notch resources for emergency room needs, surgery requirements, Intensive Care calls, clinical providers on call, and vital laboratory and blood bank concerns.

"One of the goals I reminded our Sailors was to continue to get better than they were when they came here. My primary personal goal was the same as any other CMC that has ever been on deployment, and that was to take care of our troops and get every one of them home safely. That goes double for our patients," Countryman said.

Currently

Hospital Corpsman 2nd Class Andrew L. Chase brought back his experience to handle NHB's Tactical Combat Casualty Care (TCCC) training as program manager and lead instructor.

"TCCC is the course that will help save lives on the battlefield. It's our duty to take what we know and share with our units in the field," said Chase.

Chase modified and enhanced the course to ensure that once hospital corpsmen are deployed with a Marine Corps unit, they are ready to handle first responder care for wounded on the field

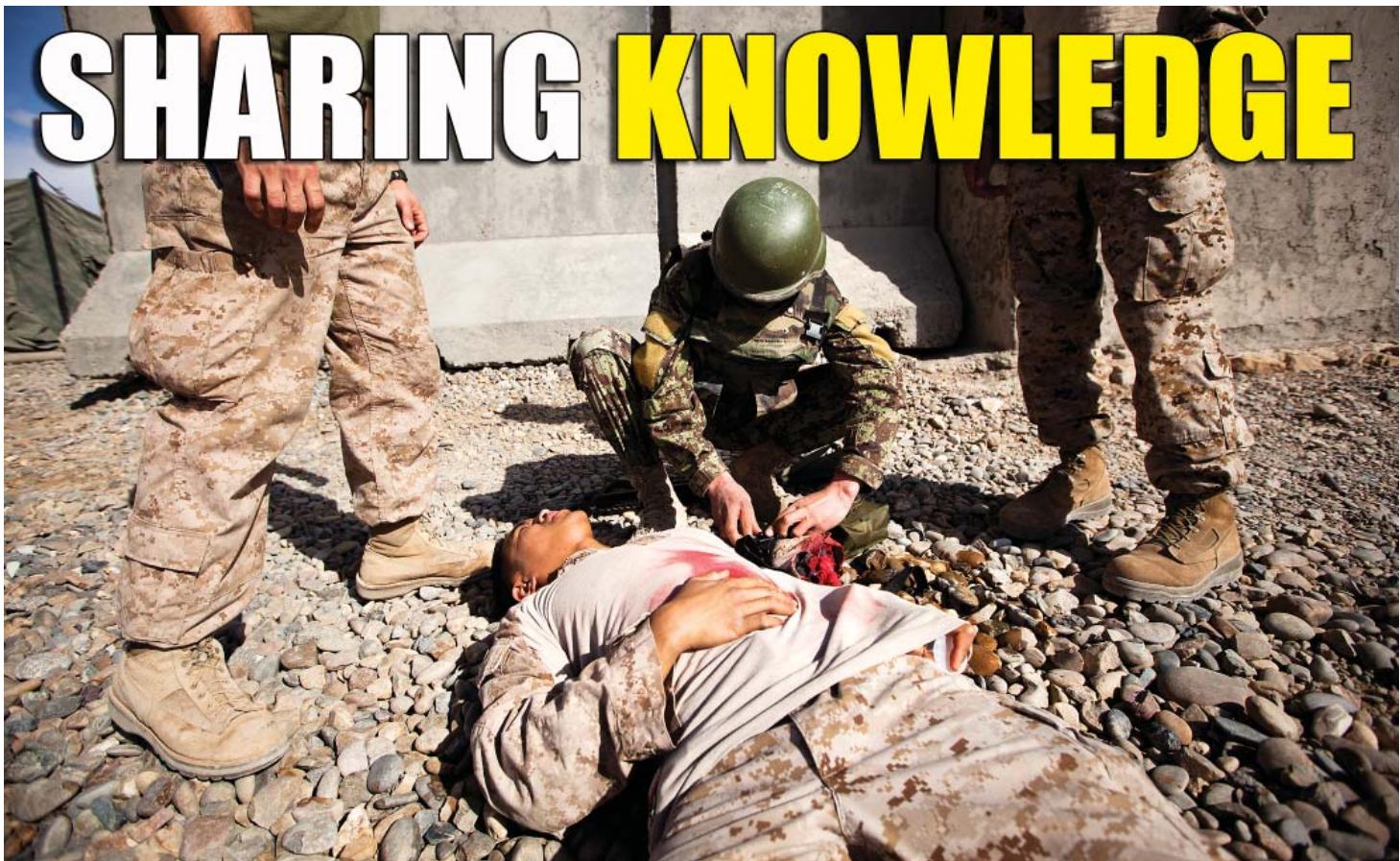
of battle and prevent loss of life. TCCC is now required within 90 days of members deploying.

"The bottom line is that you fight like you train," Chase flatly stated. "Our training will have our deployers confidently and aggressively assess and treat our wounded brothers and sisters in Afghanistan and the world over."

Chase brings knowledge gained the hard way — from the battlefields in Western Iraq to urban warfare in Baghdad. He deployed with Regimental Combat Team 1, 1st Marine Division from December 2007 to January 2009. He went originally to Fallujah, Iraq, but then found himself relocating from one hot spot to another. Along with running daily convoy ops with the Regimental Combat Team and working the Rear Area Security, he was a combat replacement for multiple Marine battalions carrying out standard operations that included mounted/dismounted patrols, and sweeping for improvised explosive devices and weapon caches. He also got in a mission with a Navy SEAL team and spent a few months embedded with a Military Transition Team training the Iraqi Army. His duties included the battle of Sadr City to helping track high value targets in Diyala. He also trained several Iraqi doctors on treating combat trauma and the necessary clinical care afterwards, as well as six Iraqi Army medics. He finished up his time in Iraq working out of Ramadi.

The support missions for OIF and OND are completed, but as is the case with the rest of Navy Medicine, Naval Hospital Bremerton continues to support ongoing contingency operations. A total of 63 staff members have deployed in 2011, with approximately 25 currently serving in Afghanistan.♦

SHARING KNOWLEDGE



Navy Hospital Corpsman 2nd Class Maxwell McGill (left), 3rd Battalion, 3rd Marine Regiment battalion aid station, and his interpreter Steve (right) observe Afghan National Army Pvt. Namatullah, a medic assigned to 2nd Kandak, 1st Brigade, 215th Corps, as he places a tourniquet on simulated casualty Navy Hospital Corpsman 2nd Class Gilbert Corpuz, a 27-year-old corpsman from Orlando, during the final examination of an eight-week ANA medic course.

Story and photos by Marine Corps Cpl. Reece Lodder

acing his student on the opposite side of a makeshift wooden trauma table, Petty Officer 2nd Class Maxwell McGill watches intently as the Afghan soldier tightens a tourniquet around a dummy's simulated leg amputation.

The focused soldier works quickly and methodically, treating his patient's simulated injuries in order of severity. Through an interpreter, the Navy corpsman asks his student to explain what he's doing. As he continues to patch up his patient, the soldier correctly articulates his treatment, a sign of progress met by McGill with

a smile and a handshake.

Afghan National Army soldiers with 2nd Kandak, 1st Brigade, 215th Corps, performed medical procedures under the guidance of Navy corpsmen with the 3rd Battalion, 3rd Marine Regiment battalion aid station during the final evaluation of an eight-week medic course.

Among the variety of medic courses conducted in Helmand province, this course led by Navy corpsmen with 'America's Battalion' was the first held for ANA soldiers in Garmsir district. The curriculum for the course was designed to be "hands-on" in response to low literacy and proficiency rates among ANA medics, said Navy Lt. Sean Stuart, the 3/3 battalion surgeon, and a native of Atlanta.

He said numerous Garmsir-based Afghan forces have died of combat-related injuries in the past because those around them couldn't perform simple medical procedures. Since many areas of medicine are repetitive, he said the corpsmen focused on helping the Afghan medics master them by consistently performing these skills.



Navy Hospital Corpsman 2nd Class Maxwell McGill, 3rd Battalion, 3rd Marine Regiment battalion aid station, observes Afghan National Army Pvt. Mohammad, a medic assigned to 2nd Kandak, 1st Brigade, 215th Corps, as he places a tourniquet on a dummy patient during the final examination of an eight-week ANA medic course.



Afghan National Army Pvt. Sadajan Abdul, a medic assigned to 2nd Kandak, 1st Brigade, 215th Corps, checks the pulse of Navy Corpsman Seth Michaelis, 3rd Battalion, 3rd Marine Regiment battalion aid station, during the final examination of an eight-week ANA medic course.

"In a combat zone, being able to save somebody's life doesn't depend on literature or education," said ANA Gunnery Sgt. Rozi Khan Eftekhar, the medical chief for 2/1/215, and a native of Mian Poshtay in Garmsir. "Our medics have to be able to fix the problem with their hands. In accordance, our training needs to be functional."

At the beginning of the course, the medics delved into general medical skills and human anatomy. Their corpsmen instructors broke them up into small groups, instructing the Afghan soldiers on previously unfamiliar concepts such as germs and functions of the body's organs.

"The biggest challenge we've faced is their learning curve," said McGill, a 25-year-old native of Englewood, Fla. "In the U.S., we have a background of education. Many of the Afghan soldiers do not, so we've had to build off the basics to teach them advanced concepts."

Stepping out of their regular role and into a men-



Afghan National Army Pvt. Samad Khan, a medic assigned to 2nd Kandak, 1st Brigade, 215th Corps, checks the heartbeat of Navy Hospital Corpsman 2nd Class Seth Michaelis, a 24-year-old corpsman with the 3rd Battalion, 3rd Marine Regiment battalion aid station, and native of Victoria, Texas, during the final examination of an eight-week ANA medic course.

torship capacity also afforded McGill and the other corpsmen an interesting opportunity to develop their expertise.

"Even though we're not necessarily learning new skill sets, it's important for us to reset and practice the ones we already know," McGill said. "We're passionate about what we do, so it's fun to pass our knowledge on to students who are eager to learn."

The ANA medics carried their newfound knowledge into classes on trauma medicine and primary care, frequently applying it during practical application exercises. They even had the chance to help tend to two Afghan gunshot wound victims and a man who sustained an open fracture in a motorcycle accident.

When it came time for their evaluation, the students filtered into the BAS, huddling around the trauma

tables to answer questions about patient care, calculate blood pressure and heart rates, and treat simulated wounds on dummy casualties.

"The most rewarding part is seeing their excitement for what they've learned," said Navy Hospital Corpsman 2nd Class Seth Michaelis, a 24-year-old from Victoria, Texas. "It means a lot to these men to specialize as medics ... they take pride in their job."

Moving outside to a weapons range, the medics worked under the sounds of gunfire to care for simulated casualties played by their instructors.

Upon the successful completion of their final test, 18 ANA medic students congregated outside the BAS to receive their medic certification cards.

"Before I came to this course, my medical knowledge was very limited," said ANA Pvt. Mansor, a



Navy Hospital Corpsman 2nd Class Maxwell McGill, a 25-year-old corpsman with the 3rd Battalion, 3rd Marine Regiment battalion aid station, and native of Englewood, Fla., checks the compass reading of Afghan National Army Pvt. Faraidoon, a medic assigned to 2nd Kandak, 1st Brigade, 215th Corps, while testing his navigation skills during the final examination of an eight-week ANA medic course.

medic with 2/1/215. "Now that I've completed it, I'm confident I can save my fellow soldiers, my friends, by myself."

As Garmir nears the transition of lead security responsibility from coalition to Afghan forces, the course will continue to play an important role in the growth of Afghan forces, Eftekhari said.

Following their graduation, the course's top two graduates will remain here to instruct the next class of medic students. The others will be stationed at various patrol bases throughout Garmir to care for their fellow soldiers.

"Every aspect of the Afghan military is important, but our medics are mediators between life and death," Eftekhari said. "God has control over all of our lives, but apart from his will, in combat, medics are the only ones who can save another soldier's life." +



Afghan National Army Pvt. Sadajan Abdul proudly displays his medic certification card after graduating an eight-week ANA medic course.

WOUNDED BODY-WARRIOR SPIRIT



Marine Corps Cpl. Josue Barron lost his left leg and left eye in an improvised explosive device blast Oct. 21, 2010. But he will never forget where he came from or who he is: a member of 3rd Battalion, 5th Marine Regiment ... the Darkhorse Battalion. It is this pride that drives him to excel as he competes against other Wounded Warriors in the 2012 Marine Corps Trials. (U.S. Marine Corps photo by Sgt. Mark Fayloga)

By Marine Corps Lance Cpl. Chelsea Flowers
Defense Media Activity

Pride. That's one thing Cpl. Josue Barron will always have. You can see it as he sinks three-pointers on the basketball court and as he maneuvers his hand-crank bicycle to the front of a race. Most of all, you can see it in his eyes – his eye to be exact. Where Barron's left eye once was, a prosthetic stamped with the symbol of 3rd Battalion, 5th Marine Regiment, stares out. Barron's prosthetic leg also sports a 3/5 patch, a custom design of his own.

To Barron, pride in where he came from means everything. And pride is what drives him as a Wounded Warrior.

In October 2010, Barron, a native of Cudahy, Calif., was deployed with 3/5, the Darkhorse Battalion. During the deployment, Darkhorse lost 24 men, more than any other Marine unit in Afghanistan in support of operations there. During a patrol, Barron's friend stepped on an improvised explosive device and lost both his legs and a few of his fingers. Barron lost his left leg and left eye. He considers himself lucky.

Now Barron is competing in wheelchair basketball and hand-cycling with more than 300 injured Marines,

veteran and allies in the 2012 Marine Corps Trials.

Barron sat down with us for a few minutes to share his perspective on a life very unique for a 22-year-old.

What were your thoughts when you were first injured?

I thought I was going to be in a wheelchair for the rest of my life because I had no idea they had high-tech prosthetics and stuff like that. When I got to the Naval Hospital in San Diego they introduced me to the C-leg and they fitted me for a prosthetic. As soon as I got it, I started walking. It was a little hard, but after a while I got used to the socket and used to the pain. Eventually the pain went away and from there I started walking.

Has it been difficult coping with your injuries?

It hasn't been that bad because I have friends who are worse off. Every time I look at them I think, I lost one limb and they lost three limbs. That kind of motivates me to keep going.

Did you think you would be where you are today?

No, not really. I took shrapnel to my right eye, too. I was blind for the first two months and I thought I was never going to see. I never thought I would be where I am right now: playing wheelchair basketball and being independent.



Marine Corps Cpl. Josue Barron lost his left leg and left eye in an improvised explosive device blast Oct. 21, 2010. But he will never forget where he came from or who he is: a member of 3rd Battalion, 5th Marine Regiment ... the Darkhorse Battalion. It is this pride that drives him to excel as he competes against other Wounded Warriors in the 2012 Marine Corps Trials. (U.S. Marine Corps photo by Sgt. Mark Fayloga)

How does it feel to be able to play competitive sports again?

It feels like I can move on from my injuries and still do the same things I used to do, but in a wheelchair. Even if I can't ride a stand-up bike, I can ride a hand-cycle. Even if I can't play basketball on my two legs, I can play in a wheelchair. It's kind of the same competition for me.

Do you feel wounded?

Not really. You know what? I don't feel wounded. I still do everything I used to do. Here and there I'll complain, but just to myself. I don't really feel wounded at all.

Do you feel that you have gotten close with other Wounded Warriors?

When you're a Marine, you're not going to be with the Marines in your platoon for the rest of your life. But

with these guys, they're all amputees and you know your leg is not going to grow back, so all of you are going to be amputees for the rest of your life. That's what keeps us together. I'm pretty sure we're going to stay close for the rest of our lives.

What are your hopes for the future?

Maybe just start a family and continue with wheelchair basketball because that's what I want to do. Hopefully, I'll make it to the Paralympics, too.

What does it mean for you to be a member of 3rd Battalion, 5th Marine Regiment? Why the logo on the eye and leg?

I'm proud to say I was with 3/5. It means a lot. There are a lot of tough guys in 3/5 and they trained us well. I lost a lot of friends, but for all of them, it was worth it. I'm proud of where I come from. +

WOUNDED BODY-WARRIOR SPIRIT



Marine Corps Sgt. Maj. Raymond Mackey lost both of his legs in an improvised explosive device blast in 2009. Now Mackey is stepping up to inspire and mentor other wounded Marines at the 2012 Marine Corps Trials and wherever else life may take them. (U.S. Marine Corps photo by Sgt. Mark Fayloga)

By Marine Corps Lance Cpl. Chelsea Flowers
Defense Media Activity

Sgt. Maj. Raymond Mackey has been in the Marine Corps for 29 years but will be the first to tell you he can still hang with even the youngest Marines on the basketball court. As he quickly maneuvers his wheelchair by other players to get open for a pass, puts up shots in the key and shouts directions to others on his team, it is easy to see that Mackey is a natural-born leader – as an athlete, a Marine and a Wounded Warrior. For the past two years, Mackey, a native of Sierra Vista, Ariz., has mentored and inspired other injured Marines he met while at Walter Reed National Military Medical Center in Maryland. It is these Marines who are now playing and competing alongside Mackey because of his gentle prodding and unwavering example. With every step he takes on his prosthetic legs and every push of the wheels on his wheelchair, Mackey is showing them what it means to be a Wounded Warrior.

While deployed to Afghanistan with 3rd Battalion,

10th Marine Regiment, in 2009 Mackey's unit came under fire while on patrol. While returning fire and moving for cover through a ditch, the Marine directly in front of Mackey stepped on the trigger mechanism of an improvised explosive device, causing it to detonate. The IED explosion funneled in the ditch, spreading out instead of up, and hit Mackey harder than the Marines around him. Most of the Marines suffered class four concussions and shrapnel wounds. Mackey lost both of his legs. But this setback did not change Mackey's desire to lead and mentor Marines. This same desire prompted Mackey to compete with more than 300 other wounded Marines, veterans and allies in the 2012 Marine Corps Trials.

Following wheelchair basketball practice, Mackey took a few minutes to talk about his recovery and his passion for Marines.

Do you think the term 'Wounded Warrior' is a good way to describe you and other wounded Marines?

All of us have been wounded in one way or another — some of them are silent, some of them are not. Some of them are obvious like myself and a couple of the oth-



Marine Corps Sgt. Maj. Raymond Mackey is a member of the East team at this year's 2012 Marine Corps Trials. Since becoming a Wounded Warrior in 2009, Mackey has mentored and inspired other young wounded Marines. (U.S. Marine Corps photo by Sgt. Mark Fayloga)

ers who have amputations and then you have the guys with post traumatic stress disorder and the traumatic brain injury; they're wounded as well.

What motivated you to come and participate in the 2012 Marine Corps Trials?

I was at Bethesda when a lot of these Marines came in. I'm the one who kind of talked them into going. So, if I didn't show up, I'd be just another person telling them to do something I wasn't doing myself. I came out here just for them.

Do you think you are able to compete with younger Marines on the court?

Hopefully one day, one of these younger guys are inspired to say, 'I want to be like the sergeant major was on the basketball court. I want to be able to turn my wheelchair in the air and go back the other way.' That's the impact I want to have.

What do you hope is the outcome of the 2012 Marine Corps Trials?

My hope is that the East Coast will take home the Commander's Cup. I want bragging rights. And I'm hoping that whomever gets selected to go to the Warrior Games will bring home the cup again.

What are your plans for the future?

You never quit being a Marine. I'm hoping to somehow still help Marines. I'm just not one who can sit still, so I'm going to try to get a job on base at Camp Lejeune where I can help Marines. It doesn't matter what I'm doing because Marines are Marines. Sometimes they need help and sometimes they need guidance. Somehow, I'll help Marines down there, whether it's inspiring them or helping them buy cars and simple things like that.

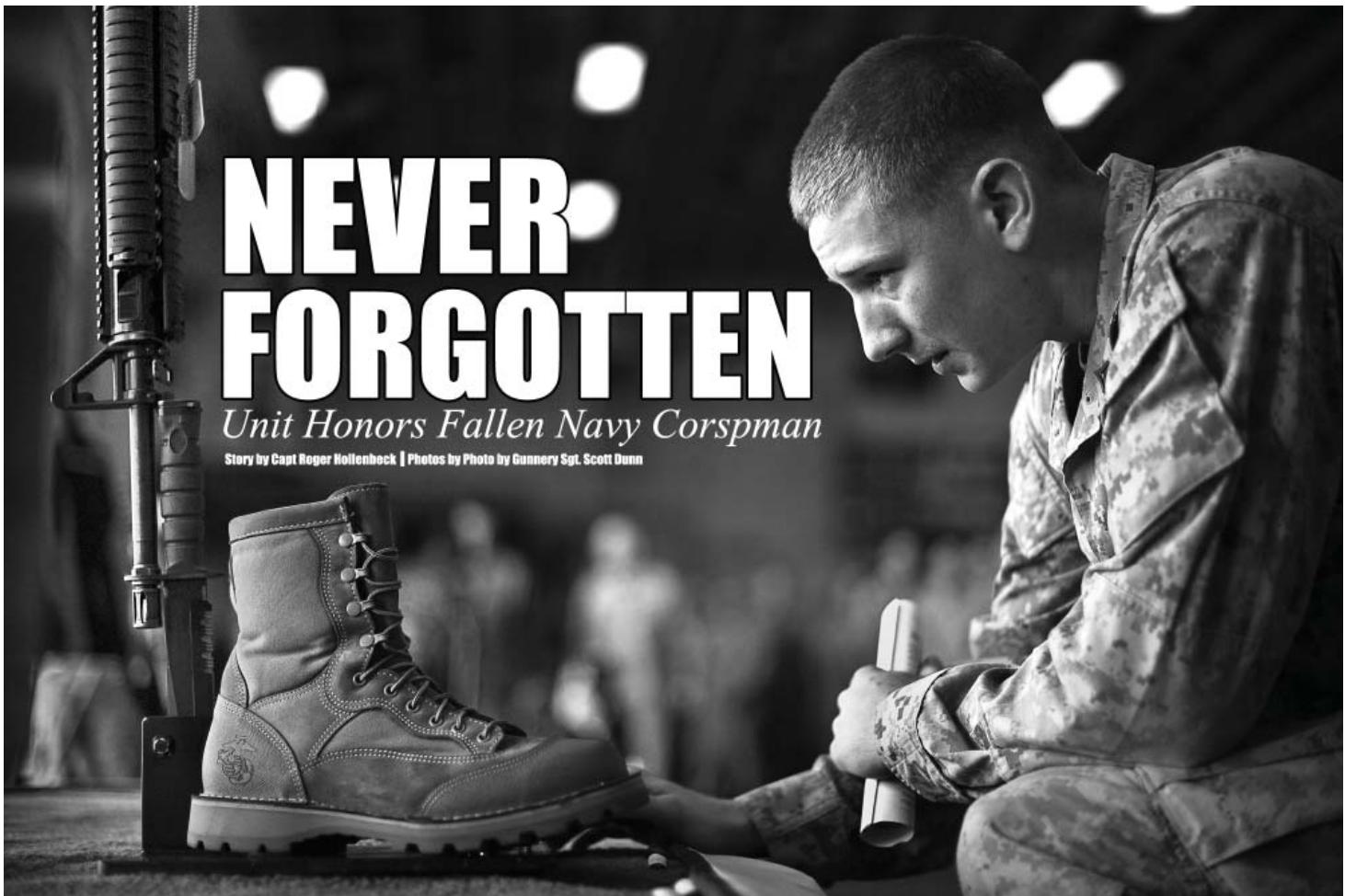
What would you like to pass on to younger wounded Marines?

I want to inspire them. You can motivate anybody, but to inspire somebody is completely different. You can motivate these guys to come out here and play this game, but if you inspire them, it's going to last a lifetime. +

NEVER FORGOTTEN

Unit Honors Fallen Navy Corpsman

Story by Capt Roger Hollenbeck | Photos by Photo by Gunnery Sgt. Scott Dunn



Marine Corps Lance Cpl. Kyle Draper kneels before a pair of boots and a rifle at a Feb. 17 memorial service aboard USS Makin Island honoring Navy Hospital Corpsman 3rd Class Kyler L. Estrada, who died in a Djibouti training accident Feb. 14. Estrada, who served with Company I, Battalion Landing Team 3/1, was 21 and a native of Maricopa, Ariz. "Doc died in the company of his brothers," said company commander Marine Corps Capt. Matt McGirr. The landing team is the ground combat element for the 11th Marine Expeditionary Unit, deployed as part of the Makin Island Amphibious Ready Group to the U.S. Fifth Fleet area of responsibility.

All hands celebrated the life and service of Navy Hospital Corpsman 3rd Class Kyler L. Estrada during a memorial service aboard USS Makin Island Feb. 17.

Salt dried on once-moist cheeks, but from others the tears kept flowing. Solemn tones complemented a poignant quiet throughout the ship.

The men of India Company – reinforced by Marines and sailors from the 11th Marine Expeditionary Unit and USS Makin Island – gathered to honor their corpsman, Doc Estrada, a Fleet Marine Force sailor who died during live-fire



Company I Marines and Sailors listen to commanding officer Capt. Matt McGirr at a Feb. 17 memorial service aboard USS Makin Island here honoring Navy Hospital Corpsman 3rd Class Kyler L. Estrada. "Doc died in the company of his brothers," said McGirr.



A Battalion Landing Team 3/1 rifle detail fires a salute at a Feb. 17 memorial service aboard USS Makin Island honoring Navy Hospital Corpsman 3rd Class Kyler L. Estrada, who died in a Djibouti training accident Feb. 14. The landing team is the ground combat element for the 11th Marine Expeditionary Unit, deployed as part of the Makin Island Amphibious Ready Group to the U.S. Fifth Fleet area of responsibility.

training in Djibouti on Valentine's Day.

A display of more than 700 men and women pressed shoulder to shoulder and filled the ship's aircraft hangar with heavy hearts.

"Doc died in the company of his brothers — brothers who trained and sweat with him, brothers who rushed to his side and would not give up on him after he fell," said Marine Corps Capt. Matthew McGirr, commanding officer of India Company, Battalion Landing Team 3/1, Estrada's company.

McGirr thanked everyone in the hangar for being there and said, "We will honor Doc by keeping faith in him in the manner that we have honored every single Marine and doc that has lived,

trained, fought and died next to us and underneath our guidon. We are going to pick up our swords; we are going to lock our shields together, and we are going to step forward, together as one."

One of Estrada's squad mates, Marine Corps Cpl. David Zochol, took to the podium and spoke, "From my time in the Marine Corps, I have come to realize there are two types of docs. The first is a corpsman in a Marine uniform; the second is a Marine in a corpsman uniform. All those that knew Doc Estrada would agree that he was the latter."

Zochol said the loss will be felt in India Company for a long time. He said, "No matter how terrible and long-lasting the pain, it pales in comparison to the pain felt by

his wife and family back home."

Eleventh MEU chaplain Navy Lt. Cmdr. Jon Conroe said Estrada was "a young man full of life and humor and devotion to his family, to his fellow Sailors and Marines, to his country and to his god."

"Doc Estrada's presence in our life was truly a gift — a gift with which we will be forever blessed," said Conroe.

A detail of seven Marines who served with Estrada fired rifle volleys in his honor and a Navy bugler sounded taps.

On his Facebook page, Estrada summed up his job: "Fix broken Marines." The eulogies attested to his skill in just that.

McGirr added that although Doc is gone, he will never be forgotten. +

Navy Corpsman

Avaluah

**Story and photos by Marine Corps Cpl. Bryan Nygaard
2nd Marine Logistics Group**



eAsset

During the late afternoon hours of Jan. 30, Marines with 9th Engineer Support Battalion, 2nd Marine Logistics Group (Forward), were working hard to take apart a medium girder bridge in the rural district of Garmsir, in Afghanistan's Helmand province. During the disassembly, part of the bridge inadvertently gave way and landed on a Marine's leg, sending him to the ground, writhing in pain.

"Doc! Doc! Doc! Doc, get up here now!"

Sprinting on to the scene with his medical bag on his back was Navy Hospital Corpsman 3rd Class Michael Soto, a corpsman for the battalion. Though he did not know exactly what was going on, he ran to where Marines were gathered. Soto knelt next to the injured Marine and began to determine the extent to which his

leg was damaged. Soto's hands trembled slightly as he used his scissors to cut the Marine's trousers to expose the injury.

Once he determined the Marine had suffered a closed fracture, Soto grabbed some splints out of his medical bag. After setting the Marine's leg, giving him some medicine to dull the pain and taking his vitals, Soto began joking with his patient.

"Oh man, now you're going to be on light duty for the rest of the deployment," chuckled Soto. "You're going to be our new clerk."

During this time, other Marines had coordinated a medical evacuation. Less than 30 minutes later, a UH-60 Black Hawk helicopter landed in a field next to the bridge site. The injured Marine was placed on a litter and carried to the aircraft with Soto leading the way.

"The way Doc Soto took care of everything and



Navy Hospital Corpsman 3rd Class Michael Soto, the corpsman for Bridge Platoon, Alpha Company, 9th Engineer Support Battalion, poses for a photo in the district of Garmsir, Helmand province. Soto, a native of Lake Villa, Ill., has been with 9th ESB for the past year and is the primary caregiver to the Marines of bridge platoon as they serve on the frontlines of Afghanistan.

"It's one of those things when Marines see their doc performing that well under pressure, it breeds confidence."

- Marine Corps 1st Lt. Matthew E. Paluta, platoon commander

**Hospital Corpsman
3rd Class Michael Soto, the corpsman for Bridge Platoon, Alpha Company, 9th Engineer Support Battalion reads through a concussion evaluation guide during a convoy through Helmand province, Afghanistan.**

really controlled the site was almost a textbook medevac," said Marine Corps Staff Sgt. Brian Glory, a combat engineer with the battalion, which is part of 3rd MLG, III Marine Expeditionary Force when it is not forward deployed. "He did his job extremely well."

The 21-year-old Soto has come a long way in his three years since joining the Navy. Growing up in Lake Villa, Ill., the self-proclaimed party animal never took anything too seriously. Now he is entrusted with rendering emergency medical treatment to Marines on the frontlines of Afghanistan.

Soto decided to join the military, like much of his family. His father, Antonio, spent 22 years

in the Navy as a sonar technician. For much of Soto's childhood, his father was aboard a ship at some remote location around the world.

"I saw what the Navy did for my dad," said Soto. "The stories he'd tell me and the pictures he'd show me ... I definitely wanted to do something like that too."

At first, Soto wanted to join the Marine Corps, but his father, a career Sailor, had other ideas. Antonio suggested to his son that he become a Navy corpsman, functioning as the primary medical caregiver to Marines on the battlefield.

"You're kind of like a Marine in a way," Soto was told by his father. "You'll be treated differently because you're a Sailor, but you're going to learn a bunch of medical stuff."

Soto was sold on the idea. After graduating from boot camp and going through hospital corpsman school, he got his first taste of what life is like in a Marine unit when he went through field medical training at Marine Corps Base Camp Pendleton, Calif.

"A lot of guys are like, 'Oh, it wasn't that bad,' but it was pretty hard for me," said Soto. "I learned a lot though. It definitely opened up another side of the corpsman rating. I was thinking it was all in the hospital and then I was exposed to actual tactical care in the field on the ground."

Once that pillar of training was completed,





Navy Hospital Corpsman 3rd Class Michael Soto, the corpsman for Bridge Platoon, Alpha Company, 9th Engineer Support Battalion, guides the litter-bearers to the landing zone during a medical evacuation of a Marine who was injured during construction of a bridge in the district of Garmisir, Helmand province.

Soto received orders to Camp Hansen on Okinawa, Japan. After working in a clinic for a while, he was transferred to 9th ESB.

In the months leading up to their current deployment to Afghanistan, Soto trained alongside the Marines and worked hard to get them medically ready. During this time, he learned Marines like to poke fun at each other and even more so at any Sailors who are within their ranks.

"He's too soft so I try to harden him up," jokes Marine Corps Lance Cpl. Jesus B. Penagraves, a combat engineer with the battalion. "I try to make him feel like a Marine. Thick skin — he needs it."

In order to fit in, Soto, who is naturally cheerful and outgoing, had to embrace the unique culture in which he was placed.

"Everyone talks trash to each other," said Soto. "You just kind of take it. I just got used to it. I started talking trash back, then I became one of them."

Three months into the deployment, "Doc" Soto is just one of the guys. He has made many friends in the platoon, who he says help him get through every day.

In addition to prescribing aspirin, patching up small cuts and pulling splinters from the fingers of Marines, Soto frequently tries to help out with the labor-intensive work his friends are engaged in when they are building bridges.

Glory often chases Soto off the building sites

out of fear of him possibly getting injured.

"There are a lot of times he tries to get involved and help the Marines out because he's created that camaraderie," said Glory. "That's just Doc Soto, but I hold him back because if he gets hurt we're kind of done."

At the time of the accident, Soto had taken a break from walking around checking on his Marines and decided to sit down to read a few pages of "Starship Troopers." Not long after sitting down, he heard the call for help. Without hesitation, the 5-foot-7-inch, 140-pound sailor sprinted to the bridge site in only a few seconds.

Marine Corps 1st Lt. Matthew E. Paluta, a platoon commander with the battalion, believes that Soto's actions have given the Marines peace of mind for the rest of the deployment.

"It wasn't a major injury, but (Soto) definitely proved his worth," said Paluta. "It's one of those things when Marines see their doc performing that well under pressure, it breeds confidence. Their minds won't be distracted as much now."

Not only do the Marines now have confidence in Soto, but he also has more confidence in himself and his fellow Marines.

"I'm happy it happened while we weren't being shot at," said Soto. "It helped me out a lot today because I actually got to see the bigger picture. I got to see how everything worked. Now I know all I really have to do is just focus on my job." +

ENHANCING THE QUALITY OF LIFE

By Sarah Fortney
Walter Reed National Military Medical Center
Public Affairs

At the cutting edge of technology, a new prosthetic arm — operated by an individual's thoughts — is now being used by wounded warriors at the Walter Reed National Military Medical Center (WRNMMC), to enhance their quality of life and afford them opportunities to regain their independence.

With nearly as much dexterity as a natural limb, 22 degrees of motion, and independent movement of fingers, the Modular Prosthetic Limb (MPL) was developed as part of a four-year program by the Johns Hopkins University Applied Physics Laboratory (APL), along with WRNMMC and the Uniformed Services University of the Health Sciences (USU). For the first time at WRNMMC, on Jan. 24, a wounded warrior began using the nine-pound device, maneuvering its metallic fingers and wrist.

"We've been working with [the APL] since the start of this project and we're very excited about the opportunity [to have] our first individual using this hand," said Army Col. (Dr.) Paul

Pasquina, chief of Orthopaedics and Prosthetics at WRNMMC and director for the Center of Rehabilitation Sciences at USU. "We believe very strongly that those who are willing to put their lives in harm's way deserve the very best. Through this revolutionizing project, we've worked with the greatest manufacturers across the globe to come up with modern solutions to loss of an upper limb."

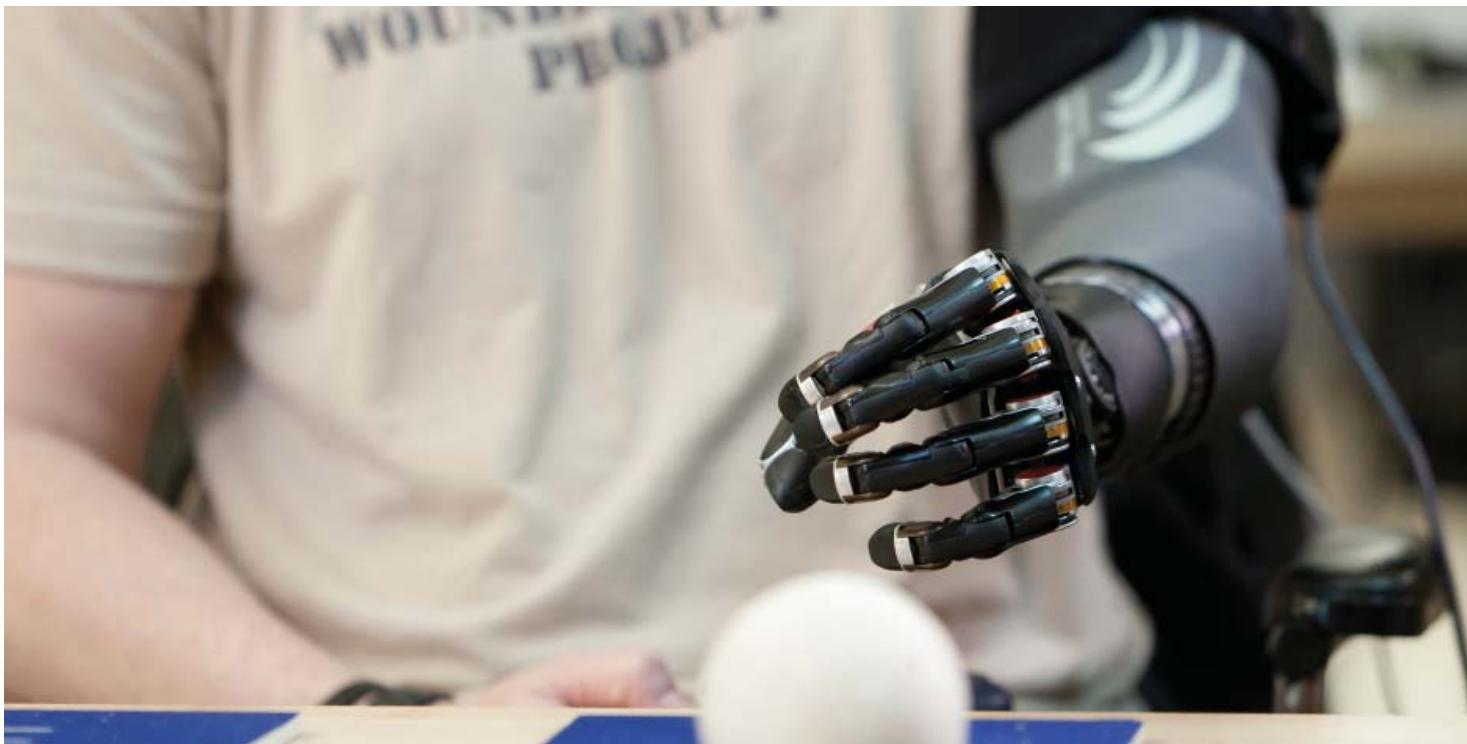
Pasquina explained the limb is controlled by surface electrodes, which pick up electric signals generated by the muscles underneath the skin, then convert those patterns in electrical signals into a robotic function.

"We wanted to make [the MPL] as intuitive as possible. Normally, when you move your hand, you think about moving your hand, and a signal comes down from your brain, goes down through your spinal cord, out through your limb and activates muscles in your hand to open or close [the hand]," Pasquina said.

With an amputee, the nerves traveling down the spinal cord are still intact, and they're still connected to some of the muscles in the arm,



Air Force Tech Sgt. Joe Delauriers was the first patient at Walter Reed National Military Medical Center (WRNMMC) to begin using the Modular Prosthetic Limb. (Photos by Ed Whitman, Johns Hopkins Applied Physics Lab)



The Modular Prosthetic Limb has nearly as much dexterity as a natural limb, 22 degrees of motion, and independent movement of fingers.



The limb is controlled by surface electrodes, which pick up electric signals generated by the muscles underneath the skin, then convert those patterns in electrical signals into a robotic function.

Pasquina said. "What we try to do is pick up the electrical signals of the muscles that still exist in the arm and interpret those, convert them to a computer signal to then drive a robotic limb," he said. "When an individual is thinking about closing their hand, muscles will activate and the prosthetic limb will respond accordingly."

Pasquina noted the potential future of this limb. Engineers seek to use electrodes underneath the skin for an electrical signal with much higher fidelity. Researchers also look to explore

The MPL was developed as part of a four-year program by the Johns Hopkins University Applied Physics Laboratory (APL), along with WRNMMC and the Uniformed Services University of the Health Sciences (USU).

other mechanisms to rewire nerves.

"There are folks working very hard on electrical sensors that can go directly on nerves, and electrical sensors that can be embedded in the brain," he said. "It's very exciting to see that research and we've been privileged to partner with a lot of folks working on that ... I think there's still a lot to be learned on how the human body can integrate with computers and computer interface, and I think the sky's the limit in terms of what we will do over the next five to ten years."

The next logical phase in the MPL's development is to incorporate sense of touch, and apply this technology to prosthetic legs in the future, said Cmdr. Jack Tsao, director of the Traumatic Brain Injury Programs for the Navy Bureau of Medicine and Surgery. A neurologist who also assisted in the project, Tsao said fortunately many amputees have expressed interest and seem willing to participate and help advance this research.

"What I think is fantastic is that we actually, because of this study, now have another option to treat amputees," said Tsao.

Before being fitted to use the device, Tsao explained amputees must first go through "training," using the Virtual Integrated Environment (VIE), which records an individual's muscle movements. By collecting their muscle data, the MPL is then suited for the individual. This gives the amputee time to learn how to use the device, fit them for it, then see how they work with it, he said.

Air Force Tech Sgt. Joe Delauriers, the first patient at WRNMMC to begin using the MPL, described the device as "pretty comfortable," and said he is grateful for the opportunity to be involved with the project.

"It's really fun working with the hand and [exciting] to see what's going to be coming in the future," said Delauriers. "Any input I can put into the program, to help them out, and future amputees, it's an honor for me. It's very rewarding."

Four months ago, Delauriers was injured by an IED blast in Afghanistan, which caused him to lose both his legs and part of his left arm. He said it's an indescribable feeling to be where he is today, thanks to advancements in care.

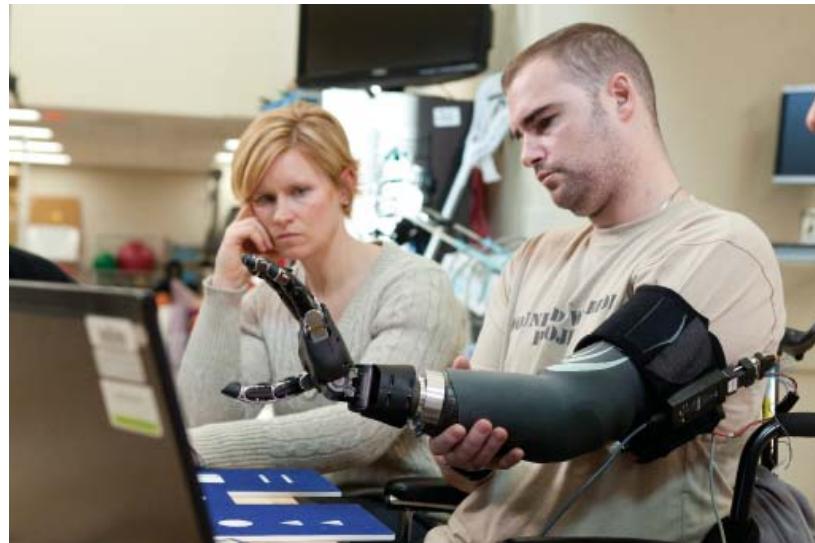
"I'm living off base, I'm driving, [and] I'm living with my [infant] son. I'm able to hold him without any open wounds, infections," he said. "They do such a great job here, with therapy. It's just amazing." The Airman said he can only imagine what these advancements will lead to in another decade.

"The technology is only going to keep getting better," said Tsao. "If guys like Joe can regain function, this would be revolutionizing to their lives, especially in the multiple limb amputees. Any degree of function and independence you can give back to someone is the most important thing." Pasquina also expressed his enthusiasm for this development, stating that he can recall when the device was merely a sketch on paper.

"It's something I still find amazing," Pasquina said. He is also amazed by the stories of the wounded warriors making such strides in their recovery.

"When an individual is thinking about closing their hand, muscles will activate and the prosthetic limb will respond accordingly."

- Col. (Dr.) Paul Pasquina, chief of Orthopaedics and Prosthetics at Walter Reed National Military Medical Center and director for the Center of Rehabilitation Sciences at Uniformed Services University



Air Force Tech Sgt. Joe Delauriers was the first patient at Walter Reed National Military Medical Center (WRNMMC) to begin using the Modular Prosthetic Limb.

"Time after time, you see people not only recover, but thrive after severe injuries, and they're inspirational to all of us, to us as medical staff who have the honor of taking care of them. It's humbling to be a part of that," he said.

Pasquina added that he'll continue his efforts to make this technology available to all service members and the population at large.

"The hand in itself is so important in terms of one's independence. Your ability to dress yourself, feed yourself, do self-grooming and hygiene is extremely important," said Pasquina. "Many of our injured service members were highly functioning, highly independent, had a great amount of responsibility, and to now find themselves in a situation where they have an impairment or disability, that makes them less independent is something that not only affects them physically, but affects them emotionally. Anything we can do to [help] them be more independent and to regain that sense of self is something we're fully committed to doing and very excited about the opportunities that this presents." +

Undersea Medical Officers

By Paul R. Ross

Managing Editor, Navy Medicine Magazine

There are elite specialties throughout the Navy — small groups of Sailors who are highly skilled and trained to accomplish the toughest of tasks. “Navy SEALs,” “Seabees,” and “EOD” (explosive ordnance detail) are some of the groups well known as the best the service has to offer. But an unknown contributing factor to the successes of these groups are the men and women who keep them fit to fight.

Undersea Medical Officers (UMO) are a key facet in keeping these groups ready to deploy at a moment's notice. They are highly-trained specialists in undersea and submarine medicine as well as radiation health and hyperbaric medicine. They perform critical services in a wide variety of assignments around the globe, often attached to

The 26-week course that starts off with a six week program at the Naval Undersea Medical Institute (NUMI), which is located at Naval Submarine Base New London in Groton, Conn. (Photo courtesy of NUMI)





After Phase two of training, which includes nine-weeks of dive training at the Naval Diving and Salvage Training Center (NDSTC) in Panama City, Fla., the officers return to NUMI to begin Phase three of training.

elite units and specialties.

"Undersea Medical Officers, by their very nature, deal with a lot of different communities that all have something in common, which is potential exposure to extreme atmospheres or extreme environmental challenges," said Navy Capt. Mark Michaud, Director of Undersea Medicine and Radiation Health.

To become a Navy UMO, a medical officer must have completed their internship and have submitted a package to be selected for the specialty. If selected, the officer then begins a 26-week course that starts off with a six week program at the Naval Undersea Medical Institute (NUMI), which is located at Naval Submarine Base New London in Groton, Conn. The program includes intense physical training and a modified submarine officer's course.

"Those six weeks ensure that the officers are in good physical shape so that when they report to dive school, as the second phase of their training, they meet the minimum physical requirements," Michaud said.

Phase two of training includes nine-weeks of dive training at the Naval Diving and Salvage Training Center (NDSTC) in Panama City, Fla. Phase three returns to NUMI where officers gain information in professional development, Advanced Cardiac Life Support refresher training, Hyperbaric Medicine, Special Warfare Medicine, Tropical Medicine and Radiation Health.

"At the completion of that, they attend a board that is attended by one of the instructors at NUMI, one of the chiefs, one of the officers and a representative of the Naval Reactors in the area to make sure that they have an adequate level of knowledge to do the radiation health training that will be required at their next job," Michaud said.

After completion of training the UMOs ship out to their first assignment.

The categories for assignments include Research, Diving, Special Warfare, Submarines, Seabees, EOD, Expeditionary Support, Marine Special Operations, Education and Training, and Leadership. These categories can take UMOs to

Undersea Medical Officer Video

To learn more about the Undersea Medical Officer (UMO) career field, watch the UMO video on YouTube. You can use your Smart Phone to view this video by downloading a QR code reader and scanning the QR Code. The video can also be viewed at <http://www.youtube.com/watch?v=nwEZrWvOIUQ>





Phase three returns to the Naval Undersea Medical Institute (NUMI) where officers gain information in professional development, Advanced Cardiac Life Support refresher training, Hyperbaric Medicine, Special Warfare Medicine, Tropical Medicine and Radiation Health.
(Photo courtesy of NUMI)



Undersea Medical Officer candidates train at the Naval Undersea Medical Institute at Naval Submarine Base New London in Groton, Conn.
(Photo courtesy of NUMI)

a variety of duty stations. A UMO might be attached to a Navy Seal unit where their main task is patient care, injury rehabilitation and management and performing routine physicals — essentially keeping Seals ready to deploy at all times. A UMO can be attached to a Submarine command or with EOD as well.

"Clearly, the role of any doctor that's affiliated with operational medicine, is to keep the warfighters healthy and at the pointy end of the spear, as we say, able to do your job," Michaud said. "It boils down to maintaining fleet readiness at an optimum level."

Other opportunities include positions with the Naval Experimental Diving Unit in Panama City, Fla., which tests and evaluates diving, hyperbaric, and other life-support systems and procedures, and conducts research and development in biomedical and environmental physiology.

These specialized medical officers can also serve at the NDSTC, where they received their initial training. At the NDSTC, UMOs treat dive related injuries, oversee dives in the hyperbaric chamber and may also serve in an educational or training role.

The year held a record number of applicants, according to Michaud.

"There are about 94 billets that I take care of as a specialty leader," Michaud said. "This year we were authorized to train 22. It was somewhat of a unique year. We had 41 applicants, 10 of which were female, which for our community is by far a record. Our normal numbers are one to two females per about 30 applicants. When we made our offers, eight females out of the ten who applied were accepted. I think a contributor to this is the change that has allowed women to serve on submarines. It's a vital mission and one that I have always been proud of."

Many UMOs are drawn to the career field because of the immense challenges.

"UMOs are attracted to diving and submarine medicine because it is something you can do nowhere else in the Navy," Michaud said. "They are attracted to the physical challenges — they have to be physically fit to a higher level than any of their comparable medical officer colleagues. We have an entrance exam at dive school and if you don't pass, you go home. It's somewhat elite in its nature, not only by what they do, but by the people they maintain."

Like most careers in the military and health care fields, each individual's experiences are unique.



“Seeing what they do to preserve the nation’s security and the American way of life, and the sacrifices they and their families make, is very humbling.”

- Lt. Cmdr Anna Choe, undersea/dive medical officer
Mobile Diving and Salvage Unit One

Lt. Cmdr Anna Choe, undersea/dive medical officer, Mobile Diving and Salvage Unit One. participates in a Navy salvage job alongside deep sea Navy divers from Mobile Diving and Salvage Unit One. “I gained great satisfaction in being able to be a part of the team,” Choe said. (Photo courtesy of Chief Navy Diver Kevin Chinn)

“As a UMO, I have been stationed at a Submarine Base clinic, in Afghanistan as an IA (Individual Augmentee), and with Navy divers,” said Lt. Cmdr Anna Choe, undersea/dive medical officer, Mobile Diving and Salvage Unit One. “I’ve worked mostly with submariners and divers during this time, but also with service members from all of the branches. Seeing what they do to preserve the nation’s security and the American way of life, and the sacrifices they and their families make, is very humbling. It is an honor to serve the men and women doing the tough job every day.”

While the daily life of a UMO may have similarities to any medical physician, it’s the other aspects of the career that make it special to most

UMOs.

“My fellow UMO colleagues and I have had some awesome experiences that our civilian and other Navy counterparts have not had,” Choe said. “Examples of these include doing a surface-supply hard hat dive on a salvage job, driving a submarine under instruction, and doing an emergency diving procedure while diving on a moving submarine, all on active-duty time.”

Regardless of the specific function a UMO executes for the Navy, the unique career field can be summed up in a few sentences.

“It’s all about readiness in elite units of people,” Michaud said. “It’s a difficult and rewarding task to care for them and we make sure that our UMOs are as special as the people they serve.”+



Undersea Medical Officer candidates train at the Naval Undersea Medical Institute at Naval Submarine Base New London in Groton, Conn. (Photo courtesy of NUMI)

CORPSMEN COMPLETE EMT TRAINING IN CUBA



U.S. Naval Hospital Guantanamo Bay Emergency Technician (EMT) trainees Hospitalman Brandon King and Hospital Corpsman 3rd Class Stacey Zimmerman work with Naval Station Guantanamo Bay firemen to move a trauma patient onto a backboard during their final EMT field training exercise at Windmill Beach. Because of its isolation, U.S. Naval Hospital Guantanamo Bay is currently the only Naval medical facility where corpsmen receive EMT training through the hospital. Once certified, the Corpsmen are nationally registered EMTs qualified to work in the hospital's emergency room and respond to on-site emergencies.

Story and photos by Stacey Byington
U.S. Naval Hospital Guantanamo Bay Public Affairs

Six U.S. Naval Hospital Guantanamo Bay (GTMO) corpsmen recently passed their final Emergency Medical Technician (EMT) training field exercise with flying colors. Upon completion and passing of the certification exam, all will become nationally registered EMTs. Because of its isolation, GTMO is the only Naval medical facility where corpsmen receive the training through the hospital.

Hospital Corpsman 3rd Class Stacey Zimmerman was a training team leader during the exercise.

"It's one of the 'perks' we have here at Guantanamo Bay," said Zimmerman. "We get a great deal

of training out of the four-week accelerated course. The normal course (in the states) takes about four months. We do the entire curriculum in four weeks. It's very intense, with classroom training six days a week, 10 hours a day, two exams a week, and practical exercises."

Hospital Corpsman 3rd Class Corey Bynum, another one of the trainees, adds, "It's a very fast-paced course."

The four other EMT trainees were Hospitalman Apprentice Paul Boss, Hospitalman Apprentice Remi Thomas, Hospitalman Kevin Corcoran and Hospitalman Brandon King.

"We need this training in order to work in the

ER (Emergency Room)," said Boss, who was also one of the scenario patients.

David Crowley, director of military medical programs with Davis Defense Group, is the contracted instructor for the EMT course at GTMO. He said they train to the National Registry of EMT standard curriculum.

"During the four-week cycle," said Crowley, "the trainees receive 160 hours of classroom training, 10 hours of emergency room observation and three field exercises. The students here at Guantanamo Bay are committed and dedicated."

Crowley added that the success rate at GTMO is very high. "They have an 80 percent first-time pass rate, which is well above the national average."

The exercise scenario involved a patient who had an arm amputated by a boat propeller, and a second patient (the person who pulled the first victim out of the water) who developed breathing problems and chest pains. The students did not know what the casualty was until they arrived on the scene at Windmill Beach.

"We try to make the scenarios as realistic as possible," said Crowley. "We try to tailor the drills to situations they might encounter at GTMO."

National certification requires that the trainees must have the "ability to provide safe and effective entry level emergency medical care."

The final scenario was a joint exercise utilizing both the corpsmen trainees and members of the U.S. Naval Station Guantanamo Bay Fire Department. GTMO's fire fighters are trained as first responders, and are not certified EMTs.

"In this scenario, the EMS team would be the incident command," said Crowley. "Realistically there are only two of them in an ambulance at a time. They are taught to utilize people who are there at the scene to provide needed assistance under the team leader."

"We worked very well together," said Chief Clifford Foley, GTMO's Fire Inspector. "The more training we get, the more comfortable we are working together."

In addition to Foley, the other GTMO fire fighters taking part in the EMT scenario were Capt. O'Neil Thompson, Jermain Brown, Matthew Martell and Glenroy Valentine.

Lt. Cmdr. Kristina Oliver, USNH GTMO's acting Director of Nursing Services, said during the scenario debrief, "Congratulations to each and every one of you. Keep training. You never know when that call will come."

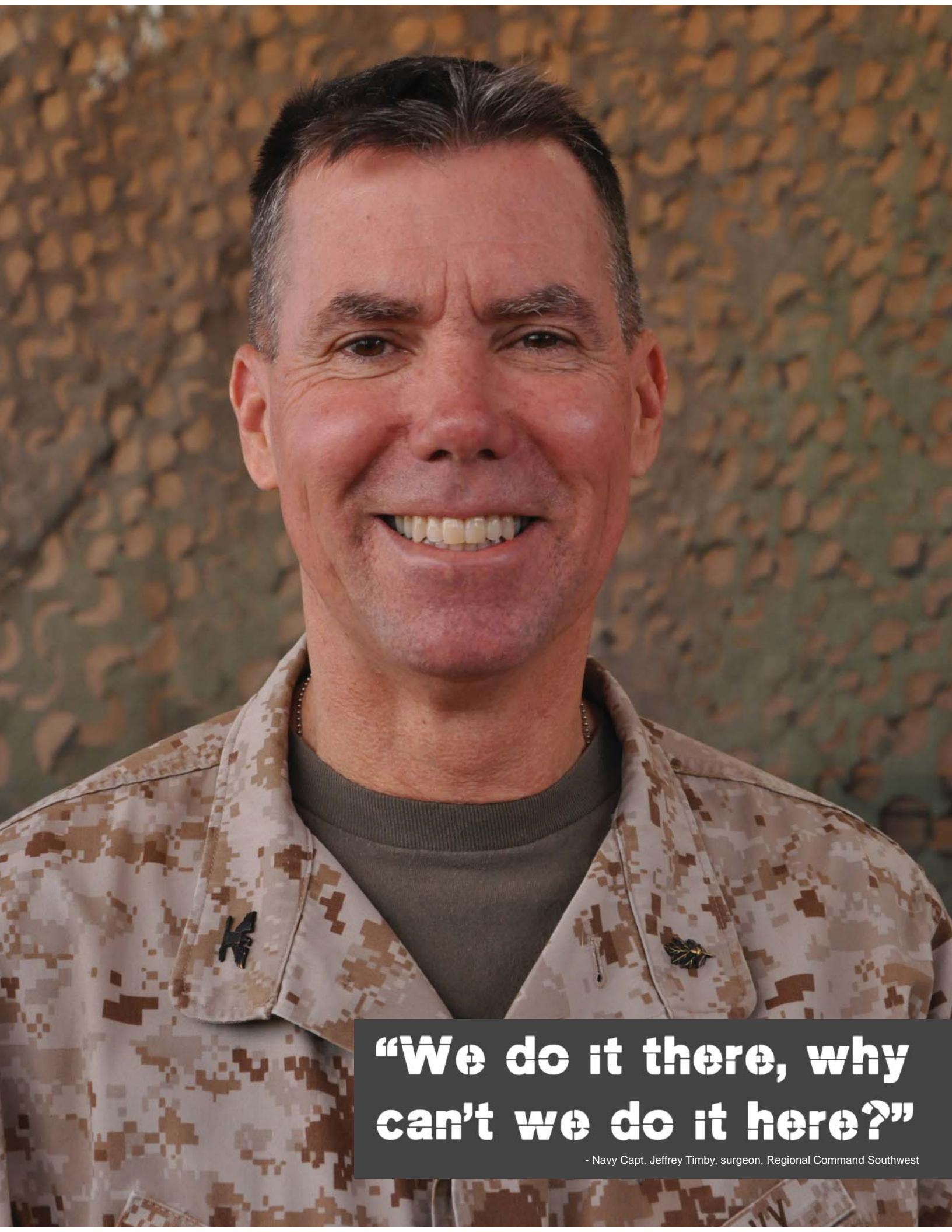
Upon certification, all six corpsmen will work in the hospital's ER.

"Due to the number of enlisted corpsmen at this small command, and the various watchbills to



U.S. Naval Hospital Guantanamo Bay Emergency Technician (EMT) trainees Hospital Corpsman 3rd Class Corey Bynum, Hospitalman Kevin Corcoran, and Hospitalman Apprentice Remi Thomas work to stabilize a simulated patient with chest pains, as Naval Station Guantanamo Bay Fire Captain O'Neil Thompson stands by to assist if needed, during their final EMT field training exercise at Windmill Beach. Because of its isolation, U.S. Naval Hospital Guantanamo Bay is currently the only Naval medical facility where Corpsmen receive EMT training through the hospital. Once certified, the Corpsmen are nationally registered EMTs qualified to work in the hospital's emergency room and respond to on-site emergencies.

which they are assigned, it has been decided that only certified EMTs will cover emergency room duty," said Cmdr. Bruce Deschere, USNH GTMO Director of Medical/Health Services. "The EMT course just completed gives us the numbers we need for that." +



**"We do it there, why
can't we do it here?"**

- Navy Capt. Jeffrey Timby, surgeon, Regional Command Southwest

DEVELOPING TRAUMA CARE IN AFGHANISTAN

Story and photo by Senior Chief Mass Communication Specialist Leslie Shively

Just as Benjamin Franklin brought the Colonies together with his “Join or Die” snake, Navy Capt. Jeffrey Timby likened the importance of developing a trauma care system in Helmand and Nimroz provinces in Afghanistan to fusing a head on a snake.

His initial impression of the state of the emergency health care system in Afghanistan came during a health care development meeting with the Afghan National Security Forces. At the meeting, he said he had an epiphany of sorts.

During a break, he was walking with the interpreter for the Afghan National Army’s 215th Corps surgeon. “Dr. Timby, I’ve been here for three years and we have never done anything like this. I am so excited to see you,” the interpreter said.

“This was the first time an effort was made toward organizing the disparate efforts of a large number of people toward a common goal of a medical program of training for the Afghan forces,” Timby, Regional Command Southwest’s surgeon, said.

Although the Basic Package of Health Services program had been implemented by the Afghan Ministry of Public Health during 2009, with trauma and trauma-related care identified as priorities; plugging emergency medical response into current infrastructure just one year ago was impossible.

“There was no ambulance system, no 911 to call,” Timby said. “It’s a blank slate. Without a police and fire dispatch system, there cannot be an emergency dispatch system. Without a communications network, there cannot be a dispatch system.”

Timby realized training medics would have to be the first step toward building a medical emergency response system.

“It’s a chicken or the egg thing,” he said. “If a guy gets injured, who is going to take care of him? Well, you need a medical system, which means you’re back at the start of the vicious circle. You can’t have any of it if you don’t have people.”

Given the low literacy rate in Afghanistan, training medics using a textbook-based curriculum was also impossible. So, the surgeon and his team looked at alternatives. The British Advisory Group had been working with the ANA’s 215th Corps putting together a skills-based,

hands-on apprenticeship program — teaching by demonstration.

Timby’s team took the on-the-job-training model, amplified it with videography and photographs producing a training curriculum covering point-of-injury care: hemorrhage, airway, breathing, circulation.

“It was excellent and that’s where we started focusing our efforts,” Timby said. “In December alone, we graduated more than 90 medics. Other classes are now standing up and about every three months they will be able to graduate between 60 and 90 medics per session.”

Prior to implementing the OJT model of teaching, only 17 medics graduated between March and October last year. The team took the program further.

“The medical program that we’ve put it place, grown and matured has been handed over to the Afghans,” said Chief Petty Officer James Cartier, Combined Medical plans and operations chief, adding that Afghans now train their own people.

Cartier said a literacy course is also offered with medical training. “It promotes a very favorable outcome in which you have a literate, independently functioning Afghan medic.”

In cooperation with RC(SW) C9, the unit responsible for development, governance and reintegration, the team also developed a unified, self-supporting Afghan medical system that will include emergency response for military, police and civilians.

“It’s definitely saving lives. I am very pleased at the success our team has been able to accomplish here,” Cartier, a native of Beaufort, S.C., said.

Timby foresees continuing the program once he returns to his home in Norfolk, Va. He plans on inviting Afghan surgeons for a two- to three-week familiarization itinerary of U.S. emergency response systems, and returning them to Afghanistan to implement improvements as necessary.

Calling the arrangement a “brain trust,” he said lessons learned from applying the knowledge and capabilities of remote-area care in places such as Montana, Wyoming or even Alaska could be used in Afghanistan for the benefit of both countries.

“Alaska is bigger than Afghanistan and 10 times more remote,” Timby said. “We do it there, why can’t we do it here?” +

NAVY ENTOMOLOGY



By Cmdr. Eric Hoffman and Lt. Cmdr. Jeff Stancil, Navy Entomology Center of Excellence

Navy Entomology is one of the smallest communities in the Medical Service Corps, but like the insects and insect-transmitted diseases they specialize in, they can be found just about anywhere from assignments with the Marines, to universities, the Centers for Disease Control and Prevention (CDC), the United States Department of Agriculture (USDA), OCONUS and CONUS research facilities and engaged in disease control projects around the world.

Lt. Michael Kavanaugh and Hospital Corpsman 1st Class Robyn Murillo work with local medical personnel to sample mosquito larvae in Puerto Barrios, Guatemala as part of Operation Continuing Promise 2010. (Photo by Mass Communication Specialist 2nd Class Jonathon E. Davis)

Despite the variety of assignments, Navy entomologists share one common focus and that is prevention of deadly and debilitating disease in deployed war fighters. As evidence of that commitment, Navy entomologists have one of the highest operational tempos in the Medical Service Corps. Since the attacks of Sept. 11, 2001, the community has deployed personnel for a cumulative total of over 34 years in support of Army, Navy and Marine units on contingency missions including Operation Enduring Freedom, Operation Iraqi Freedom and humanitarian assistance/disaster relief

missions including Operation Unified Assistance-Indonesia and Operation Unified Response-Haiti. The cumulative deployed time does not include numerous shorter temporary duty support assignments and is remarkable considering Navy entomology has only 38 billets.

The commitment to disease prevention carries over to readiness and training in which the Navy Entomology Center of Excellence (NECE) in Jacksonville, Fla. and the Navy Environmental Preventive Medicine Units in Norfolk, Va., San Diego, and Pearl Harbor, Hawaii provide unique, world-class education to the next generation of preventive medicine specialists of all services through a variety of courses on vector (disease carrying arthropods) surveillance, identification and control as well as the discovery and development of cutting edge technologies including new pesticides and pesticide delivery equipment.

With the goal of making the discovery and development process more efficient while maintaining military relevance, Navy entomologist, Capt. (Ret) Gary Breeden was instrumental in securing funding to create the Deployed War-Fighter Protection Program (DWFP) reviving the historic link between DoD, USDA, industry and academia that had historically led to the creation of DEET (the most common ingredient in modern repellents), aerosol spray cans, and cutting edge bio-pesticides which have become the industry standard in public health vector control. Since its start in 2003, the joint DWFP program has awarded 62 competitive grants and worked with over 120 collaborators to produce in excess of 310 peer-reviewed publications, 12 patents (with 6 additional patents pending), the development of new application equipment with commercial partners, the screening of over 2000 novel chemicals for potential application in public health, the creation of smartphone applications for information transfer and fielded 6 new pieces of equipment and pesticides to deployed military forces, directly preventing disease transmission.

Preventing disease in war fighters operating in endemic areas is always more efficient and cost effective than subsequent treatments. Nowhere is this more evident than with the vector-borne disease malaria which has a global



Navy entomologists Lt. Ryan Larson (far left), Lt. Tony Hughes (4th from left) and Lt. Jim Dunford (far right) attend a joint preventive medicine meeting in Kandahar, Afghanistan while deployed in support of Navy, Marine and Army units. (Photo by Lt. Ryan Larson)

impact of over 3.5 billion persons at risk, 250 million annual reported cases and a death toll of roughly 1 million. During World War II, the impact of malaria, primarily in the Pacific theater, was profound as noted by Gen. Douglas MacArthur who commented to his surgeon "Doctor, this will be a long war if for every division I have facing the enemy, I must count on a second division in hospital with malaria and a third division convalescing from this debilitating disease." More recently, during OIF and OEF, 2,832 U. S. military personnel were diagnosed with cutaneous leishmaniasis (transmitted by infected sandflies) between April 2003 and April 2011. Of those, approximately 850 were evacuated to CONUS medical facilities for treatment at an estimated per member cost of \$35,000 and 60-90 days lost duty all of which could have been prevented with the appropriate use of personal protective measures such as insect repellents, repellent treated uniforms and bednets.

Because vector-borne diseases like malaria and leishmaniasis impact all services, military entomology has had a joint focus since WWII. Established by DoD policy in 1956 the Armed Forces Pest Management Board (AFPMB) serves as the Secretary of Defense advisor on all vector and pest issues in the DoD. Currently working under the leadership of Navy entomologist Capt.

Stan Cope, his staff of Army, Navy and Air Force entomologists create policy, approve new products for inclusion in the National Stock System and ensure that all service branches coordinate research, development and guidance.

The tactics and techniques developed by Navy entomologists to combat vector-borne disease are tested at domestic and overseas labs in Hawaii, Egypt and Peru and are utilized to support not only combat troops but are transferred to partner nations during annual humanitarian assistance missions like Operation Pacific Partnership, Operation Continuing Promise and Operation Onward Liberty, Liberia. Disease prevention and control depends on establishing comprehensive programs, often times, in areas where none currently exist. Navy entomologists, often in collaboration with the CDC and the United States Agency for International Development (USAID), also build partner nation capacity by providing world-class training in vector-borne disease control to international public health professionals and currently serve as the vector control consultants for Mali, Malawi, Uganda, Ghana and Liberia as part of the President's Malaria Initiative (a program that has saved countless lives) demonstrating that while a small part of the Navy Medicine team, Navy entomology with its unique skill sets and training is a strong part of the Global Force for Good. +

Vaccine Expected to

Story and photo by Jayna Legg
Lovell Federal Health Care Center Public Affairs

On cue, 88 U. S. Navy recruits lifted small cups of water and swallowed the two pills that marked the culmination of more than a decade of work to bring back the adenovirus vaccine.

There wasn't much fanfare at USS Red Rover — part of the Captain James A. Lovell Federal Health Care Center — that October day in North Chicago, Ill. The daily, very early morning business of conducting medical and dental checks on brand new Sailors was continuing as usual. But on the sidelines, FHCC staff members knew it was a historic moment.

"This is a big deal for us," said Lt. Cmdr. Marc Herwitz, who heads the medical

section at USS Red Rover. "This vaccine has the potential to reduce the incidence of a virus that can significantly impact the training mission of recruits at the RTC (Recruit Training Command.)"

In the general population, adenovirus, which can cause upper respiratory illnesses, isn't a public health problem. Symptoms include fever, sore throat, cough, congestion, headaches and eye infections. Occasionally the infected person gets pneumonia and, in rare cases, some die.

In a close-quarters environment, like the one recruits live and train in, illness spreads quickly and results in down time and missed training. If they are out sick too long, recruits may be "recycled"

into new divisions, separated from their original group of fellow recruits.

The new vaccine will prevent that. Mark Lesko, head of Occupational Health Medicine Department at Lovell FHCC, said in clinical trials, the vaccine was more than 90 percent effective.

Herwitz said, "From a public health perspective, it's essential to guard health and prevent sickness. Our biggest bang for the buck here is preventative medicine."

The Department of Defense invested approximately \$100 million over a 10-year period to bring the vaccine back to military recruits and basic trainees, Lesko said. Recruits received the vaccine



No Improve Training

for roughly 25 years, ending in the late 1990s when Wyeth Pharmaceuticals ceased production of the vaccine.

"The prior adenovirus vaccine was only indicated for the military population, and it was no longer a profitable endeavor for Wyeth to remain in production, nor for other manufacturers to immediately take on new production in 1999," Lesko wrote in a fact sheet on the vaccine.

After that, getting it going again was no easy feat. The U.S. Food and Drug Administration had decisions to make; a new manufacturer had to be found, and there were new clinical studies, including a large trial at USS Red Rover where

thousands of volunteers agreed to try the vaccine.

Brandon Burton, now Research Compliance Officer at Lovell FHCC, remembers those days well. He was the lead coordinator for the study. "I had 13 research coordinators and 110 part-time people working on that trial, and it took all of our energy for a couple of years," Burton said. "It's very satisfying to get to this point."

Researchers weren't the only ones who prepared long in advance for the day the new vaccine would be administered for the first time. A six-member "Adenovirus Team" at USS Red Rover spent many hours training,

"The staff has done a fabulous job in

prepping for the administration of this," said Lt. Cmdr. Tina Cox, staff nurse at USS Red Rover.

Cox said team members, led by Medicine Custodian Sarah McGraw, started months in advance with online training. They also role-played "on the green mat," where recruits line up before receiving vaccinations.

Hospitalman 1st Class Cody Davis, in particular, had to write and rehearse his "Green Mat Speech," the briefing he would give recruits outlining what the vaccine is and why it's beneficial. About an hour before the recruits lined up on the mat, Davis shrugged and smiled when asked if he was ready.

"The team probably spent more than 50 hours total to prepare," Cox said. "It's been a lot of hard work."

For Burton and Holly Gallo, one of the research coordinators for the trial, walking around USS Red Rover and being there to see the first recruits get the new vaccine was a homecoming of sorts, as well as a celebration.

"This is great," Gallo said, snapping photos of staff preparing to administer the vaccine. "It's wonderful to be here and see this finally through to fruition." +

The new adenovirus vaccine, which comes in the form of two pills, is only available to military trainee and recruit populations. In clinical trials, which included a trial at USS Red Rover, the vaccine was more than 90 percent effective.



NEPMU-2 Revolutionizes Norovirus Testing Kit

By Lt. Matthew Montgomery
Navy Environmental Preventive Medicine Unit Two

The Navy Environmental Preventive Medicine Unit Two (NEPMU2) recently developed a revolutionary norovirus testing kit to aide in the identification of norovirus outbreaks Navy-wide.

The testing kit was created through the collective efforts of a research team, led by Lt. Chris Coetzer, NEPMU-2 biochemist, to support the Navy and Marine Corps Public Health Center's (NMCPHC) initiative to better manage the burden of norovirus outbreaks and subsequent loss of manpower in the Fleet.

"Noroviruses are the most common etiologic agents of acute gastroenteritis in the United States," said Cmdr. Cynthia Sikorski, head of NEPMU2's Threat Assessment Department. "The virus' low infectivity dose and easy transmissibility make it extremely contagious."

While norovirus is usually a mild self-limiting disease, high morbidity and high incidence of hospitalization are associated with it. The explosiveness of these outbreaks has the potential to significantly affect operational mission capability in the fleet.

"NEPMU2's innovative sampling technique for norovirus outbreaks will have significant impact in understanding the epidemiology and true burden of disease, and ultimately enhance prevention efforts," said Sikorski.

Norovirus is the most common cause of acute gastrointestinal (AGI) outbreaks worldwide. Symptoms of a norovirus infection may include the rapid-onset of acute vomiting, diarrhea, nausea, and abdominal cramps.

While diarrhea is more common for children, vomiting is more common in adults. Dehydration is the most common complication. Symptoms of the disease last an average of 12 to 60 hours. Unfortunately, there is no long-lasting immunity to norovirus; thus,



U.S. Navy Environmental and Preventive Medicine Unit No.2 biochemist Lt. Chris Coetzer, watched by Hospital Corpsman 1st Class Damien Bush, discusses the advantages of the new norovirus surveillance kit developed by their laboratory. The new test kit takes up less space and can be stored and shipped at room temperature compared to the old kit that required shipping on dry-ice. (Photo by Hospital Corpsman 1st Class Ryan Predum)

outbreaks can affect people of all ages and in a variety of settings.

There are currently no vaccines or medicines that can prevent Norovirus infections. Those suffering from this illness should drink lots of fluids to prevent dehydration and seek medical attention immediately.

Norovirus outbreaks occur throughout the year, but over 80% of them occur during the months of November through April.

Norovirus is highly contagious and as few as 10 viral particles may be sufficient to infect an individual. It is spread primarily by person-to-person transmission. Due to crowded conditions and norovirus's level of contagiousness, deployed military personnel are at high risk of epidemic gastroenteritis. Infected food handlers can be responsible for large outbreaks, and should not return to work until two to three days after symptoms have resolved.

The virus spreads mostly via a fecal-oral route, which involves ingestion of contaminated food and water. Another mechanism of transmission includes

inhalation of aerosolized vomit. In addition, contaminated hands can spread the virus to environmental surfaces.

"Contaminated surfaces in ship's heads, medical, berthing, or other spaces where people gather may become important sources of new infections," said Coetzer. "Norovirus can survive up to 12 hours on hard surfaces in the environment, and up to 12 days on contaminated carpet or textile materials such as swabs used for cleaning."

Despite the enormous role played by norovirus in gastrointestinal illness, the Navy has a noticeable lack of diagnostic capacity under current shore-based and fleet platforms.

To remedy this, NEPMU-2 has undertaken the task of establishing a diagnostic capability for norovirus by developing and validating state-of-the-art lab protocols at the NEPMU-2 laboratory. This entails preparing standard operating procedures for norovirus polymerase chain reaction (PCR) detection, validating the new collection method, and establishing relationships with the laboratories at the respective NEPMUs.



Chief Hospital Corpsman Steven Maier, demonstrates the processing of the norovirus samples collected using the new surveillance kit developed by U.S. Navy Environmental and Preventive Medicine Unit No.2 Norfolk, Va. (Photo by Lt. Chris Coetzer)

"After visiting some ships here in Norfolk and seeing how small most of the medical spaces are onboard, we knew we had to find a way to make our sampling kit more user-friendly," said Coetzer. "The kit had to be small enough for easy storage, not require sub-zero storage, and not require shipping on dry-ice, which would necessitate bulk shipping containers."

The new norovirus surveillance kit meets all the aforementioned requirements. The breakthrough came by taking advantage of the stability of norovirus on solid surfaces. In their new collection protocol NEPMU-2 has replaced the bulky liquid collection tubes that require storage at -20° Celsius with a small piece of special filter paper that binds to the virus for storage at room temperature.

These small cards can then be shipped at room temperature in a pouch that fits into a regular large envelope, which is a big plus.

Additionally, this new collection

method requires a very small amount of stool and allows the patient the option to provide a sample more conveniently compared to the rectal swab in the old collection method.

"We are rolling out the new kit to the Fleet this spring, starting with ships that are deploying out of Norfolk, Va.," said Lt. Cmdr. Jamal Dejli, director of the microbiology laboratory at NEPMU-2. "Then we'll train the labs that service the Fleet outside of our Unit's area of operation to do the same testing over there."

"The development of this new specimen collection method is a demonstration of the innovative thought process that is the hallmark of the Environmental and Preventive Medicine Units," said Cmdr. Andrew Vaughn, NEPMU-2 officer-in-charge. "Our personnel encounter real world problems such as the need to collect specimens of a highly contagious pathogen and find practical solutions to safely and efficiently meet that need."

"Whether it is in the field of microbiology, prevention, industrial hygiene, entomology, environmental health, audiology or disease surveillance, NEPMU-2 personnel are always seeking to improve, streamline or simplify the process of accomplishing the mission with an eye toward conserving precious resources," said Vaughn. "Innovations like the norovirus testing kit support our ultimate goal of providing timely answers and relevant services to the Fleet and Marine Forces."

This work was funded entirely by the Global Emerging Infections Surveillance and Response System Operation, a division of the Armed Forces Health Surveillance Center. +

For more information on norovirus, visit the NEPMU-2 website at: http://www.med.navy.mil/sites/nepmu2/Pages/diseases_noro.aspx

NAMRU-3 Collaborates to Eradicate Cutaneous Leishmaniasis

By Darnell Gardner
NAMRU-3 Public Affairs

The U.S. Naval Medical Research Unit No. 3 (NAMRU-3) in Cairo, Egypt, began scientific collaboration in September 2011 with the Moroccan Ministry of Health to work on the eradication of cutaneous leishmaniasis (CL), a disfiguring skin condition caused by infection with the organism *Leishmania major* (*L. major*). The offending microbe, a resident of the rodent-sand fly ecosystem, is transmitted to humans by the bite of infected sand flies, which become infected when they feed on the feces or blood of an infected rodent. CL is a serious health problem in Morocco, with nearly 9,000 cases reported in 2010.

Over 2,500 U.S. personnel serving in the Middle East and Asia have contracted leishmaniasis at an estimated cost of over \$20 million in treatment and lost personnel-hours. NAMRU-3's Vector Biology Research Program's active engagement in disease surveillance and novel research activities have served as an integral part of the Navy's medical research mission to combat CL.

With funding support from the Deployed War-Fighter Protection (DWFP) program, Dr. Hanafi Hanafi, NAMRU-3 vector biologist, and Dr. Thomas Mascari, a parasitologist from the Louisiana State University Agricultural Center (LSU AgCenter), traveled to Morocco to collaborate with Moroccan researchers on selecting suitable sites for sand fly and rodent surveillance in several CL endemic areas.

"Dr. Cherif Mohamed, Director, Health Province Bouarafa, pinpointed the Jerada, Berkane, and Figuig provinces of eastern Morocco, to initiate surveillance activities," explained Hanafi. "These areas are historically endemic for CL due to the presence of numerous *Meriones shawi* (*M. shawi*) and *Psammomys obesus*



Dr. Hanafi Hanafi, accompanied by Moroccan researchers, surveys the habitat of *Psammomys obesus* (suspected reservoir host of *L. major* in Morocco) in Tejery sector, Bouarfa Province. (Photo courtesy of NAMRU-3 Public Affairs)

(*P. obesus*) rodent colonies. These rodents serve as the primary source of fresh blood meals for sand flies and are considered reservoir hosts for CL."

This effort entailed conducting a study on sand fly control using specially treated rodent foods throughout suspected feeding areas of *M. shawi* and *P. obesus*. The first type of food was treated with fluorescent dye that left a trail of identifiable excrement when ingested. This allowed researchers to pinpoint exact feeding areas of the *M. shawi*. The second type of food was laced with rodent-friendly ivermectin insecticide. Once ingested, ivermectin enters the rodents' bloodstream, resulting in a deadly blood meal for the female sand flies who feed on the rodents while leaving the rodents themselves unharmed. In addition, the excrement left by the ivermectin-fed rodents serves as a poisoning agent for the sand fly lar-

vae who use rodent excrement as a food source.

Observation cameras, specially treated rodent food, and specialized light traps were set up to monitor levels of activity among sand flies and rodents. Approximately 5,000 sand flies and feces samples were collected, proving the treated bait was palatable to *M. shawi*. Samples were shipped to the LSU Ag-Center for final analysis to determine the impact of the rodent bait treatments on the sand fly populations.

"This is an important first step for field trials for sand fly control, using feed-through and systemic insecticides in areas where CL is problematic. The success of this project has resulted in the designation of additional sites for sand fly and leishmaniasis studies in Morocco. Positive discussions with Moroccan collaborators have also ensured the continuation of this project into Spring 2012," Dr. Hanafi said. +

Dayton Lab Acquires Joint Biological Agent ID and Diagnostic System

By Lt. Andre Ntamack

Naval Medical Research Unit-Dayton

The Naval Medical Research Unit-Dayton (NAMRU-Dayton), located at Wright-Patterson Air Force Base in Ohio, acquired the Joint Biological Agent Identification and Diagnostic System (JBAIDS) in May 2011. JBAIDS is a reusable, portable, modifiable identification and diagnostic system that employs polymerase chain reaction (PCR) technology, which is capable of simultaneous, reliable identification of multiple biological threat agents of medical and operational significance.

NAMRU-Dayton is actively involved in research and operational endeavors involving the JBAIDS system. Dr. Karen Mumy, a microbiologist at NAMRU-Dayton, has teamed with U.S. Air

Force School of Aerospace Medicine (USAFSAM) researchers to validate the Food Analysis Transport System (FATS) sampling methodology developed to identify select agents that cause foodborne illness.

In addition, the 88th AMDS/SGPB Bioenvironmental Engineering Group has asked NAMRU-Dayton to collaborate in generating exercise scenarios to test biological threat consequence management capabilities at Wright-Patterson Air Force Base.

JBAIDS enhances force health protection by providing the capability to determine appropriate treatment, risk and prevention measures in response to the presence of biological agents. PCR is a technique that amplifies specific regions of DNA in order



JBAIDS is composed of a thermocycler capable of automatically analyzing samples for the presence of targeted DNA sequences.
(Photo courtesy of NAMRU-Dayton)

to produce enough DNA to be adequately tested.

JBAIDS is configured to support reliable and rapid identification of biological agents from various sources including clinical, environmental (e.g., air, water, food, entomology, veterinary) and forensic samples. Since

biological threat agents (e.g., pathogens and toxins) can be intentionally or accidentally delivered to target areas anywhere in the theater(s) of operation affecting military readiness and effectiveness, JBAIDS provides rapid evaluation to protect military and civilian personnel. +

Navy Researchers: Predicting Dengue Hemorrhagic Fever

From Naval Medical Research Unit No. 6 Public Affairs

Dengue disease, caused by the dengue virus and spread by mosquitoes, poses a risk to nearly two-fifths of the world's population. Among those at risk are military personnel stationed or serving in tropical areas of Latin America, Africa and Asia. Distinguishing which patients will progress to manifest the life-threatening symptoms of dengue hemorrhagic fever remains a key diagnostic issue. A group of U.S. Naval Medical Research Unit No. 6 (NAMRU-6) researchers recently contributed to an article published in the American Journal of Tropical Medicine and Hygiene titled 'A Three-Component Biomarker Panel for Prediction of Dengue Hemorrhagic Fever' that addressed this challenge.

Combining with study site doctors in Venezuela, dengue experts at University of California-Davis, and Translation Science and Preventive Medicine experts at University of Texas-Galveston, the team investigated eleven laboratory parameters in order to find a correlation with disease outcome. Three laboratory tests, including two that are routinely collected, were able to accurately predict who would progress to severe disease.

The team aims to confirm these initial findings by conducting further studies incorporating more patients and new study sites including Iquitos, Peru, an area with high dengue transmission where one of NAMRU-6's research laboratories is located.

Active duty members affiliated with the initial study include Lt. Cmdr. Tadeuz Kochel, Cmdr. Patrick Blair and Lt. Col. Eric Halsey. Other NAMRU-6 contributors include Amy Morrison, Claudio Rocha, Brett Forshey and Isabel Bazan.

Infection with the dengue virus may result in disease with a wide range of severity and symptoms. The most common form of symptomatic disease, dengue fever, is considered benign, but nevertheless may cause excruciating muscle and bone pain, leading to the nickname "breakbone fever." More severe forms of dengue virus infection may result in dengue hemorrhagic fever or dengue shock syndrome, characterized by life-threatening bleeding and organ dysfunction. Dengue fever may be managed on an outpatient basis; the more severe forms of dengue infection necessitate close monitoring by medical professionals in a health care setting. +

Navy Medicine 1942



Officers and men lining up on the deck of the USS Yorktown for captain's inspection as the carrier made her way back from a recent action against the Japanese in the Pacific.

By Jan K. Herman

Historian of the Navy Medical Department and Director, Benjamin Rush Education and Conference Center of the Navy Medicine Institute

By André B. Sobociński

Research Historian and Publications Manager, Office of Medical History, Navy Bureau of Medicine and Surgery

On Dec. 8, 1941, World War II came to the Philippines when Japanese bombers hit Clark and Nichols Fields. Two days later enemy bombers returned, this time destroying the Cavite Navy Yard and killing and maiming scores of Americans and Filipinos. Personnel at the nearby Cañacao Naval Hospital worked frantically to treat the wounded.

Japanese soldiers who landed on Philippine beaches in late December 1941 overwhelmed the ill-equipped and outnumbered Americans and Filipinos. By the time Japanese forces entered Manila on Jan. 1 after GEN Douglas MacArthur declared it an "open city," its battered defenders had already withdrawn to the Bataan Peninsula to make their last stand.

As food and medicine ran out, disease took its toll among Bataan's defenders. The lack of quinine for the treatment of malaria was critical, and without it many men came down with the disease. Nearly everyone suffered debilitating weakness from dysentery. Overwhelmed, Bataan's 75,000 defenders finally surrendered in April 1942.

But out in Manila Bay, the island fortress of Corregidor still remained defiant despite a lack of food and ammunition. After a month of heavy bombardment and finally landings by Japanese forces, Corregidor surrendered on May 6th. American power in the Far East had been extinguished. Yet despite the new reality, the hundreds of medical professionals captured in the Pacific were still "Doc" or "Nurse" to their fellow POWs. Without hospitals or supplies, they con-

tinued to practice their healing art, often under unimaginable circumstances.

Some 10,000 surrendered at Corregidor after thousands of captured Americans and Filipinos had already died on the infamous Bataan Death March. Those who survived Japanese brutality and neglect now faced Japanese prison camps. For the approximately 17,000 Americans and 12,000 Filipino scouts who surrendered in the Philippines, the real ordeal had barely begun. Torture, forced labor, starvation and death became the norm in Japanese POW camps throughout the Far East.

Even though physicians and corpsmen did the best they could to provide health care in these camps, they had virtually no drugs or instruments. Malaria and dengue fever were endemic. Sanitation was non-existent and almost everybody had dysentery. Many came down with deficiency diseases like scurvy, optic neuritis, and beriberi. By the summer of 1942 the Japanese held over 50,000 prisoners, 20,000 of whom were Americans.

Eleven of these were Navy nurses from the Cañacao Naval Hospital. They spent the war in internment camps at Santo Tomás in Manila and then at Los Baños in the Philippine countryside, where they were finally liberated in February 1945. Many of their male colleagues never made it home, either succumbing to disease, starvation, brutal treatment by their captives, or dying by "friendly fire" when the so-called hell ships in which they were being transported to Japan were sunk by American submarines or aircraft. Despite the fate of these unfortunate POWs, the war against Japan was in full swing by the summer of 1942.

At home and abroad the Navy Medical Department adapted to trials of war. Navy Medical care pre-war was geared to the day-to-day caring for accidents, illnesses and overseeing general health of sailors and Marines. Practically overnight, Medical Department personnel had to contend with battle casualties, battle fatigue, neuroses, and tropical disease. Malaria proved a particularly difficult challenge for the forces fighting in the island campaigns. Navy medical personnel trained in preventive medicine

Even though physicians and corpsmen did the best they could to provide health care in these camps, they had virtually no drugs or instruments.

oiled malaria breeding areas and sprayed DDT. Physicians and corpsmen dispensed quinine and synthetic drugs like atabrine as malaria suppressants.

Reconquering territory held by the enemy was the priority and it meant fighting island by island, each one a stepping stone to Tokyo. Organizing the Navy Medical Department to care for the thousands of Navy and Marine Corps casualties generated by opposed amphibious landings, make them well, and then return them to duty was the major priority. It was in the Pacific war that Navy medicine faced its greatest challenge dealing with the aftermath of intense, bloody warfare fought far from fixed hospitals. This put enormous pressure on medical personnel closest to the front and forced new approaches to primary care and evacuation.

The most dramatic and demanding duty a Navy hospital corpsman could have was with Marine Corps units in the field. Because the Marine Corps has always relied upon the Navy for medical support, corpsmen accompanied the leathernecks and suffered the brunt of combat themselves. Many of them went unarmed, reserving their carrying strength for medical supplies.

Navy corpsmen were the first critical link in the evacuation chain. From the time a Marine was hit on an invasion

beach at Guadalcanal (on 7 August 1942), the hospital corpsman braved enemy fire to render aid. They applied a battle dressing, administered morphine, and tagged the casualty. If he were lucky, the corpsman might commandeer a litter team to move the casualty out of harm's way and on to a battalion aid station or a collecting and clearing company for further treatment. This care would mean stabilizing the patient with plasma, serum albumin, and, later in the war, whole blood. In some cases, the casualty was then moved to the beach for evacuation. In others, the casualty was taken to a base or mobile hospital, where doctors performed further stabilization, including emergency surgery if needed.

By the summer of 1942, the Navy Medical Department operated base and mobile hospitals near the frontlines of the Pacific war. Base Hospital No. 2 located Efate, New Hebrides was first Navy hospital in Southwest Pacific. Between 20 September-31 December 1942, the Navy treated 3,020 patients, most delivered by air planes throughout the Guadalcanal campaign. The casualties were received at Base Hospital No. 2 after an average of about 36 hours. Most patients were brought by air to airfield 6 miles from the field hospital. A quonset hut for receiving patients was



Whole blood flown from the United States goes aboard a transport at Guam for a rapid return to Iwo Jima.

placed near the landing strip where a hospital corpsman and Medical Officer supervised the transfer of patients to hospitals. Hospital casualties were divided into four classes.

-Class A: Convalescent expectancy less than 90 days.

-Class B: Psychoneuroses, war neuroses, and situational neuroses.

-Class C: Convalescent expectancy of over 90 days.

-Class D: Permanently disabled for further fighting in the South Pacific Area.

Classes B, C, D were transferred to hospital ship Solace or ambulance ship Tryon for disposition. Class D was usually evacuated to the United States.

Navy hospital ships, employed mainly as ambulances, provided first aid and some surgical care for the casualties' needs while ferrying them to base hospitals in the Pacific or back to the United States for definitive care. As the war continued, air evacuation helped carry the load. Trained Navy nurses and corpsmen staffed the evacuation aircraft.

The Pacific war was massive in scale, fought over vast stretches of ocean. Fleets engaged one another often many miles distant from one another. Carrier-based aircraft were the surrogates that sought out the enemy and delivered the ordnance. U.S. Navy task forces consisting of carriers, battleships, cruisers, destroyers, and destroyer escorts

required their own medical support and each of these vessels had among their crews corpsmen, physicians, and, aboard the larger vessels, dentists as well.

Arguably the turning point in the war in the Pacific occurred in the first week of 1942. During the first week of June 1942, the Imperial Japanese Navy, buoyed by its overwhelming victories in Singapore, Hong Kong, Malaya, the Dutch East Indies, and the Philippines, prepared to lure what remained of the United States Navy's Pacific Fleet into battle and finish it off in a final showdown. A month before, carrier based planes of both fleets had dueled in the skies above the Coral Sea, a battle in which neither fleet saw the other.

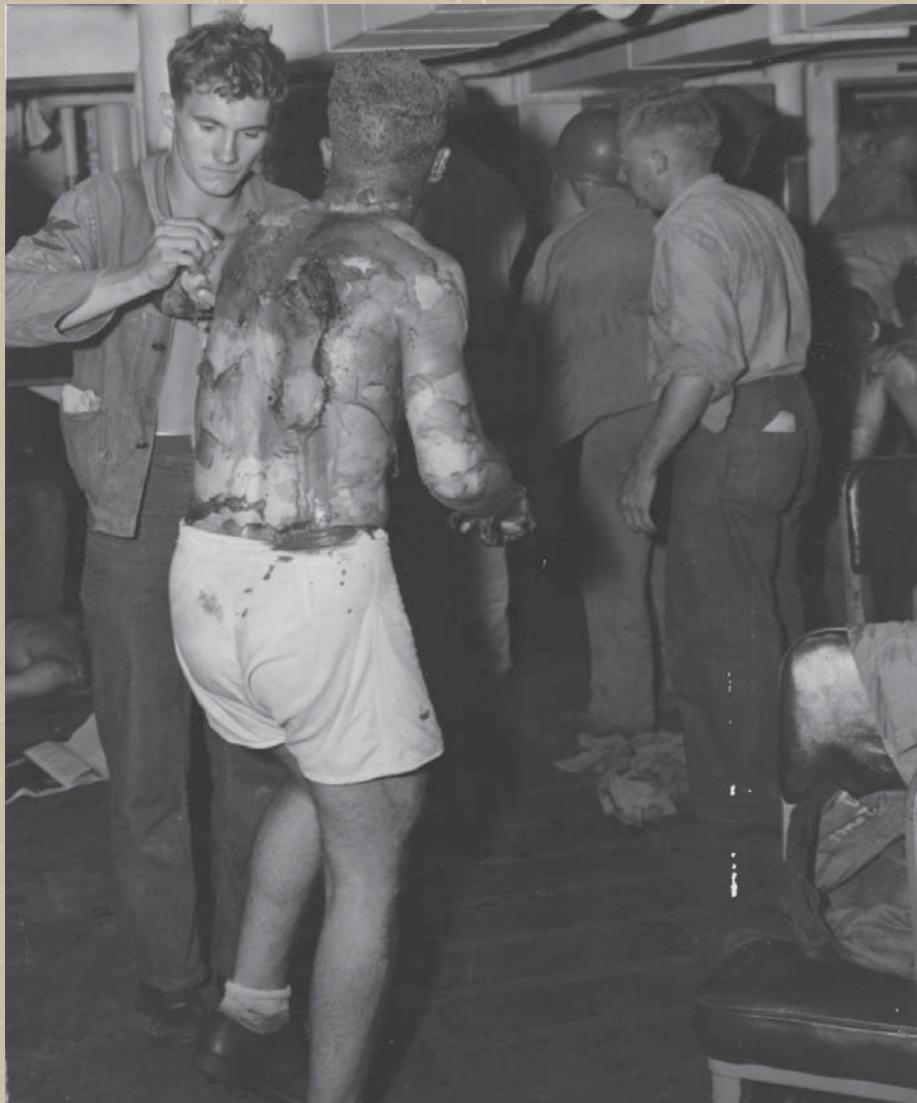
Since then, American codebreakers had learned the enemy's latest target—tiny Midway Island.

Seven hundred miles west of Midway a lone PBY patrol plane spotted the invaders through the clouds. On the morning of June 4th, another PBY confirmed the approach of the Japanese carrier strike force 200 miles from Midway. Three American aircraft carriers and a small but determined force waited in ambush.

Opposing navies launched aircraft and by mid-morning the battle favored the Americans. Attacking American torpedo bombers drew the Japanese fighters down to sea level but in the melee that followed, most of the Navy planes were shot down and all but one of their pilots killed. The sacrifice of the torpedo bombers, however, cleared the skies above for the American dive-bombers. Within minutes three Japanese carriers were ablaze. Hiryu, the fourth Japanese carrier retaliated with an air attack which seriously damaged the Yorktown. A Japanese submarine would later deliver the coup de grace, sinking the mighty carrier.

That afternoon, American aircraft caught the Hiryu, inflicting serious damage. The Japanese fleet retreated. The one-day battle reversed the tide of war in the Pacific, six months after Pearl Harbor. The carriers that had launched the sneak attack on our Pacific fleet had been destroyed or seriously damaged along with the best pilots of the Imperial Navy. From that point on, Japan would be on the defensive.

Stateside the Navy Medical Department had continued to transform. By the end of 1942 the Navy Medical Department had more than quadrupled in size from its pre-war years. New Navy hospitals were springing up across the landscape in Harriman, NY, Long Beach, CA, Norman, OK, Oakland, CA, and Treasure Island, CA. Naval Hospital Washington, DC, a tenant of the old Naval Observatory campus since 1906 transferred to the lush meadows of Bethesda becoming the National Naval Medical Center. The Bureau of Medicine and Surgery, an organization established in 1842, moved from the Main



Ordeal by fire - his back a blistered excruciatingly tender blotch of blood and blackened skin, a U.S. Navy man submits to medical treatment below decks of a warship in Lingayen Gulf. He rises on his toes with his left foot to ease the agony of the injuries.

Navy and Munitions Building to the recently vacated Naval Hospital Washington, DC, campus in August 1942.

For the first time since World War I, the Navy began opening its doors to women serving in non-nursing roles. In 1942, Drs. Achsa Bean, and Cornelia Gaskill made history becoming the first female physicians commissioned in the Navy. In August 1942, the Navy established the WAVES (Women Accepted for Volunteer Emergency Service) allowing women to join its wartime enlisted ranks. At their peak wartime strength, women Pharmacist's Mates (sometimes referred to as CorpsWAVES) accounted for a quarter of all Navy medical enlisted sailors on the home front. And as the

war raged overseas and Navy hospital patient loads grew exponentially, these dedicated pioneers went far to keep the beleaguered Medical Department afloat.

As doors were opened to some they still remained closed in 1942 for others. Although the number of African American Navy civilians doubled from 511 (4.7 percent of entire workforce) to 1,051 (7.1 percent of entire workforce). Between October 1941 and 23 February 1942, African Americans could not yet serve as Navy dentists, hospital corpsmen, nurses or physicians. Of the 49 jobs listed in the Navy recruiting pamphlet, *What Kind of Job Can I Get?*, only 26 were open to African Americans. +

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CARIBBEAN SEA Doctors treat victims aboard the Military Sealift Command hospital ship USNS Comfort (T-AH 20) off the coast of Haiti. Comfort is conducting humanitarian and disaster relief operations as part of Operation Unified Response after a 7.0 magnitude earthquake caused severe damage in Haiti Jan. 12. The Comfort and the U.S. Navy are leading a multinational effort to provide emergency medical assistance in Port-au-Prince, Haiti.

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